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THE HAY SYSTEM OF
CHILD-DEVELOPMENT

BY

WILLIAM HOWARD HAY M.D.

AND

ESTHER L. SMITH

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INTRODUCTION

THERE has been such an insistent call for a book on the rearing of children that the writing of this book was almost compulsory.

There is surely no subject of greater importance than that of the proper rearing of children, and that this has not been treated as yet in a wholly practical and acceptable manner is the best imaginable excuse for the birth of this present work.

It has been a real pleasure to collaborate with Mrs Esther L. Smith in the production of the present work, for I am familiar with her educational, experimental, and personal background, and know of no one more eminently fitted to write both understandingly and authoritatively on the rearing of such children as every mother desires.

Children must first of all be well, if they are to meet the desires of any mother, and it is possible for little babies and very young children to be perfectly well, if born whole in all their parts. For heredity determines only their form and major characteristics, their tendencies to disease, their weak links in the chain of resistance, while the fact of health or disease is predicated almost wholly on how they are fed from the moment of birth.

If fed correctly they can be well at all times, resistant to disease or any outside influence. If improperly fed, as is the case with almost every little baby, they can have the usual form and number of diseases supposedly peculiar to early childhood; not only can they have these, but they almost surely will have them.

Mrs Smith has gone fully into the cultural rearing of children, while my part has been largely that of dietary direction from the first day of life until the body is well developed and the habits of living well established.

Children correctly fed are not ill, they are not cross, they develop regularly and symmetrically, they grow at the normal rate, they do not show the deficiencies present in 75 per cent. of our children in attendance at school.

They are far advanced mentally, and take high rank in their studies. They will not swell the ranks of the mental or physical defectives, nor later of the criminal class, for they will be normal children.

I wish to impress on every mother the importance of withholding from the diet of babies all starchy or sugar foods until all of the teeth are in evidence, for the reason that the saliva of the infant is not supplied with sufficient ptyalin to handle these forms of concentrated carbohydrate so early in life. If this one care is exercised during the first two years it will do more than anything else, perhaps, to insure freedom from the usual frequent digestive upsets that are so common in babies.

If there is anything else that exercises as great an adverse influence on health during the first two years of life, it is the use of foods that are in any way refined or denatured, as food that is deprived of its normal elements or salts and vitamins is necessarily deficient food and will result in deficiencies in such children as are so unfortunate as to be compelled to depend on this, a broken reed, for nourishment.

I am sure every mother will welcome this volume, and those who know Mrs Smith's own beautiful children, and who are familiar with her *Official Cook Book of the Hay System* and other writings, will not fail to recognize in her an authority beyond question.

WILLIAM HOWARD HAY

THE HAY SYSTEM OF CHILD-DEVELOPMENT

CHAPTER I

INITIAL REQUISITES IN PREPARATION FOR FAMILY

UNIVERSAL recognition of the importance of organized child welfare has been achieved. Village and metropolis alike point with pride to sums spent in this worthy cause. Yet the need becomes, if not more urgent, at least more widespread from year to year. The public is slow to classify this need as a badge of social inefficiency. Physical care, providing shelter, clothing, food, and medical attention, is indeed an excellent thing, saving the lives and health of thousands of children.

The sad fact is that there are thousands of children needing such care. Not only those whose needs are met through public funds but many in homes where there is no lack of means, are suffering from malnutrition, lowered vitality and resistance, and the resulting under-development due to ignorance of parents who are cultured members of society, welleducated when judged by the standards of their group, successful in business or profession, but unfit for parenthood because they were unprepared for it. Equally urgent with the need for protection and guidance of the child is the need for education of all persons of marriageable age, in the matters requisite to the establishment and maintenance of a home, the pursuit of a happy home life, and the rearing of a family. The inalienable right of the child to be well-born includes his right to a happy home, to physical and mental health, to parents who cherish him and are concerned about his welfare to the extent of learning how properly to supply his needs.

A congenial home atmosphere can prevail only where parents agree upon all the fundamental phases of child-training and when the economic status is sufficiently high to provide adequately for the rearing of a family. Complete understanding and harmony between parents is essential. How much better it would be for homes and children, if amorous swains and lovely maidens could approach marriage viewing each other and their prospects in life through the cool crystal of sagacity rather than the rose-coloured glasses distributed by Cupid!

Marriage requires triple adjustment—mental, physical, and social; and these cannot be made instantaneously. Though the marriage service reads like the final consummation of all adjustments, it is but the starting-point of a hazardous journey that will surely lead to happiness or discontent. A simple 'I will' transfers the intelligent and successful woman to a class legally considered on a mental plant with 'infants, insane persons, and drunkards.' She may be obliged (by creed) to promise obedience to a husband whose wisdom and judgment rate lower than her own. Because of these remnants of barbarism, tact, perspicacity, and consideration are required of the husband.

Cultural and social standards for the family are determined by the feminine head of the house. Men will abide by whatever requirements are set by their wives in the matter of social attitudes and cultural levels. A man and woman married after reasonable acquaintance and belonging to the same class of society, will have few cultural problems to vex them. But where there has been a hasty marriage, and especially if the contracting parties have come from homes that differ widely in ideals and standards, the question of cultural values for the new home and family must be determined and a definite plan mapped out. Whether Sarah is to have instruction in dancing or Tommy be prevented from growing into a lazy, careless, uncouth boy should be settled not when Sarah and Tommy are six and seven, but long before that time. Parents must be prepared to endure the tedious years of training when the ear-splitting 1–2–3–4 of the young musical aspirant and the rainbow effect of water-colours indiscriminately daubed over linens and rugs become dominant notes in the delicate harmony of home. It is all a part of the programme. Radiant health and mental poise are the buffers that smooth the way for mother and father. It is never too soon to realize that to produce genius or even a normal child, calls for the constant exhibition of patience, gentleness, firmness, cheerfulness, and every other known virtue on the part of both parents over a period of years.

Human relationships offer opportunity to teach the first steps in culture. The most adroit means of teaching the child is by personal example. When parents have definite ethical standards by which they are guided and in which they implicitly believe, their task of imparting high standards to the child is immeasurably eased; for he will respond to example in absorbing ideals when he cannot be reached by preaching or compulsion. Remember this line from Pope: "Men must be taught as if you taught them not."

With rare exceptions the problems of finance baffle the young married couple. An income estimated at the time as adequate for marriage must be stretched this way and that to cover unexpected and uncalculated expenses. The question of money probably is the stumbling-block of more marriages than any other single consideration. What a splendid thing it would be if budget-schedules could be dispensed with marriage licences! Young wives are frequently heard to express their willingness to live with only the necessities of life in order to fulfil the high destiny that means complete happiness for their husbands. Such statements are typically feminine and an unfailing indication of immaturity. The wise young man will have determined before marriage whether necessities—as interpreted by the girl of his choice—include an occasional evening at the cinema or a sixteen-cylinder motor-car. Pamphlets published by the United States Government show precisely the requirements for an economic standard of living that should be achieved before the advent of children into the home.

Failure of health of either parent or financial considerations may determine the size of the family. However, agreement upon the subject is imperative. It is a question that should be discussed sanely and to a conclusion. Legally, the subject of birth-control is taboo. It is also a matter of actual fact that every family needs authentic information on this, one of the most vital problems of marriage. Can it be that our law-makers are blind to the extent of physical injuries and mental torture visited upon wives through lack of such information? If children are a blessing, they may also be an unmitigated burden. The greatest joy may come to parents of a suitable number of children, but every child is an additional responsibility, and when the parents are attempting to carry too great a responsibility, neglect begins. If every child could be sure of a real welcome and good care, there would no longer be a juvenile welfare problem.

Family tradition may determine the aims set for the development and education of children. Statistics show that almost 50 per cent. of young men follow the occupations of their fathers, or one closely related. Except for the ultimate occupation of home-making, few girls have any precedent to follow. However, if the girl has an especially gifted mother, she probably will wish some kind of career for herself. Natural talents are the only reliable guides to choice of vocation for either girls or boys. Where no marked talents are manifest, parents must exercise the utmost care in directing the course of the child. Probably 70 per cent. of the pupils at school have no idea what course they will pursue on leaving. No doubt this is responsible for the large number who take up the father's occupation. These boys are following the line of least resistance, rather than investigating conditions for themselves.

The level of aspiration should be placed as high as is consistent with the mental calibre of the individual. Each child must be taught to strive for his fullest development, and to feel this his duty to himself and to society. Up-to-the-minute educators no longer attempt to hitch each wagon to a star; they are recognizing differences of capacity for learning and are undertaking to prepare the individual for the type and class of occupation suitable to his ability. The goal should always be possible of attainment with effort, otherwise the child becomes discouraged. Loyal followers are altogether as important in the world as the dynamic leader; a fortunate circumstance, for obviously few are equipped to lead. The highest good parents can do their children along educational and cultural lines is to help to discover natural talents and start the young people on the path of development of these talents.

Health of prospective parents is the most outstanding consideration in planning for a family. With one or two horrible exceptions, disease is not transmitted to children; but many children are endowed with tendencies to weakness of organs which usually develop into disease when the child is constantly in contact with persons suffering from it. Weak and ailing mothers are usually peevish and careless: they are not able or fit to care for a child. The first step in banishing the child-welfare problem is requirement of a certificate of normal health from both man and woman when a marriage licence is issued. Until there is practical application of the knowledge supplied by the science of eugenics, each adult must bear his own responsibility towards his children and society at large.

Both man and woman are equally under an obligation to bring to marriage unblemished character and normal health. Responsibility for the economic status of the family, however, should rest solely upon the father. Every man should be conversant with what is considered the " minimum standard (of living) consistent with normal development of children." He should learn what percentage of juvenile delinquency due to mental stress is the direct result of inadequate provision for children. No intelligent man wishes his family to exist at the minimum level; but this information will help him realize something of the requirements of a family, and can be used as a basis for calculating higher levels.

It has been written that " the keystone of a woman's happiness is security," and this is true of the completely feminine type. Love is the dominant influence in the lives of such women. These are the natural mothers. Lacking the assurance of strength in their husbands this type will develop the egoism that drives the more talented woman to accomplishment. Whether of the selfish or unselfish type, egoism is the dominant factor in the lives of all successful people. It is this same force that keeps the average man loyal to his home and family. He reasons that because he chose to marry her, his wife must be desirable.

When physical health and mental capacity qualify a woman to combine homemaking with an outside career, by all means arrangements should be made to solve the problems that develop; for while woman's innate desire is for a home of her own it must be recognized that not all women are of the maternal type.

Freedom from worry, lack of exacting duties and responsibilities, and plenty of leisure promote mental poise; but health is the final determining factor in the mental state of every woman. Her schedule must provide time for outdoor exercise, social pleasures, and the pursuit of a hobby if at all possible. She must take care that she has sufficient rest, proper diet, and a diversity of interests to keep her in buoyant health and to promote mental alertness.

Every child has a right to a healthy mental and physical inheritance. Good hereditary tendencies are the result of the union of good chromosomes in the germ plasm. Both physical and mental traits may be passed on from ancestors several generations removed, by development of genes that have come down the family line without development in intervening generations. This accounts for the genius that sometimes seems to spring miraculously from nowhere.

Physically the child can inherit a body no better than the structure of the parental body. Disease is rarely transmitted to the child, but tendencies towards weakness of organs can be passed on. A dreaded disease, tuberculosis for instance, is not transmitted by birth, but will be likely to develop in a child predisposed to have a weakness of lung structure and constantly exposed to contact with affected persons.

The relation of heredity and environment to development is an open question. Possibilities of bad inheritance may be controlled or offset by the development of better tendencies also inborn. As with mental capacity, traits of personality woefully lack development in the average individual. A healthy environment, formation of good habits, a scientific dietary, careful training, and supervision will tend to bring out the best in every individual.

If parents could visualize the genes (bearers of heredity) as the building-stones, and environment as the architect of character, they would have a fair idea of the relative values of these two forces. The period of development in man being high in proportion to the average span of life, possibilities for the influence of environmental factors are great.

Children of healthy parents are usually normal. With sensible care they will grow into normal adults. All the furore about conditioning, reactions, and phenomena that is taking parents by storm and striking fear in their hearts, really belongs to the psychiatrists and psychologists. There should be joy and pride in parenthood. What parents need most is plain good sense, and definite information on the subjects of growth, development, and needs of the normal child. The purpose of this volume is to fill the latter need.

CHAPTER II

PHYSIOLOGY OF REPRODUCTION

A CLEAR understanding of the manner of the beginning of a new life will be advantageous to the expectant mother in planning for her own care. This necessitates a thorough comprehension of the physiology of reproduction, the parts of the system, and how they function. The possession of this important information will clear up any vague fears that may result from the foolish and entirely unfounded stories that reach every young woman at this time. Neither good common sense nor a liberal education is sufficient to dispel the apprehensions that have their roots in superstition and supposedly ‘ true stories ’ of the experience of others. The possession of facts will take care of this problem.

Childbirth is a normal, physiological process and, with proper care, a process attended by little danger. The importance of a healthy body in anticipation of pregnancy, to insure a healthy germ plasm, will be impressed upon the woman who understands the development of the cells carrying the life-bearing plasm.

The female reproductive organs include the ovaries (two), the Fallopian tubes (two) and the uterus.

The ovaries are glands with triple duties that will be discussed later. These glands lie at each side of the uterus, and are connected with it by the Fallopian tubes, which are merely tiny passages, traversed by the ova when expelled; or possibly by the spermatozoon or male cell, previous to conception.

The uterus (or receiving organ) is a small pear-shaped, muscular structure, normally about three inches long, but capable of astonishing growth and elasticity. It is connected to the external part by the vagina.

The triple duties of the ovaries are as follows:

1. They supply an internal secretion important in the development of the female body and of purely feminine characteristics.

2. They produce the ova, or egg-cells.

3. During pregnancy, they control by secretions the changes that occur in the lining of the uterus.

The ova are formed before the birth of the female child. Their original number has been estimated at about 100,000. This great number is decreased by degeneration of the cells themselves, and by the complete development and passage, each month, of one ovum, from the time of puberty to the menopause. At this time they have completely disappeared.

When complete, the ovum is the largest cell in the body—about 1/125 inch in diameter. It consists of (*a*) the nucleus, holding the life-bearing chromosomes;

(*b*) the cytoplasm, or cell plasm, which is much the larger part of the cell.

The cytoplasm carries the yolk material of the cell, used to nourish the new cell formed at conception, until such time as a system of osmosis is established between the blood-stream of the mother and the blood-vessels of the child, whereby nutrition is supplied to the growing child, and waste products are carried away from it, through the maternal blood-stream.

The interaction of the cytoplasm with the genes of the chromosomes, constitutes the fundamental process of development. This process is begun before the ovum has been expelled by the ovary, and continues throughout the term, causing the development of the various parts of the growing body.

When the ovum is completely formed, there follows the division of the nuclear material containing the chromosomes. Each chromosome splits lengthwise, the halves moving to opposite sides of the cell. The cell becomes constricted about the middle and is finally divided at this point. This process is known as maturation. The part bearing the cytoplasm and half of the chromosomes is now ready to be expelled from the ovary. An increase in yolk material is noticeable at this time.

Now the ovum is released from the protective covering and passes from the ovary along the Fallopian tube, towards the uterus. The ovaries alternate in this function—each expelling the mature ovum every other month.

The construction of the ovum is one of the most wonderful works of nature. Each ovum, like every cell in the human body, carries 48 chromosomes. These chromosomes are visible under the microscope, appearing like threads. They may be straight, bent, or even U-shaped.

At the beginning of life, as a single cell, the female individual has the usual, even number of chromosomes. The male has but a single member in one of its 'pairs.' This gave rise to the theory that a female cell carries a certain number of chromosomes, plus two sex-determining units. The male has the usual number, plus one sex-determining unit. Thus the sex of the new cell is determined at conception, by the number of its chromosomes.

A chromosome may be described as a compound structure, constituted by a fixed number of separable units called genes. There are thousands of genes in each ovum. Each gene has its particular place in the chromosome string, and controls the development of some particular part of the body or characteristics of the embryonic child.

As has been mentioned before, the chromosomes appear in pairs in each cell. One member of each pair is the contribution of each parent to the new cell.

The genes that constitute the chromosomes have been passed on from the various ancestors of each individual. Thus there may appear in children, characteristics of their grandparents or even more remote ancestors.

This is a fascinating subject for study. And particularly interesting to prospective parents.

The ovum after maturation must be fertilized by the male cell before growth of a new cell can take place. The male cell (spermatozoon) is smaller than the ovum and differs from the usual cell in structure. Before being expelled, the spermatozoon undergoes the same process of maturation noted in the development of the ovum. The chromosomes are grouped together in the nucleus, forming a head; the cytoplasm condenses and forms a vibratile tail. By means of this appendage, the spermatozoon is capable of locomotion, and may find its way into the Fallopian tube from the uterus, in search of the ovum.

The meeting of a mature sperm and a mature ovum results in the fusion of the nuclei of the two. The head of the sperm enters the ovum. The two cells now united form a single, new, complete cell, comprised of the usual number of chromosomes of the human cell. The chromosomes group themselves properly, the cell divides at the equator, and the growth of the embryonic child has begun.

The union of the sperm and ovum probably takes place in the Fallopian tube; about one week after fertilization the growing mass (only slightly larger than the original cell) is passed down the tube and deposited in the uterus. Here the new growth penetrates the surface of the membrane lining the uterus, the membrane closes over it, completely encasing the growing mass of cells.

The structure of the new growth now consists of a tiny sphere of cells, enclosing a central cavity—the whole surrounded by a delicate membrane. This membrane develops multiple projections, which push their way in every direction into the surrounding tissues, preparing for the growth of the embryo and forming, with the thickened lining of the uterus, the placenta and membranes of the ‘afterbirth.’

This implantation of the cell growth in the membrane of the uterus, causes cessation of menstruation during pregnancy.

Now that the growing cell, called the embryo, is safely lodged within the protecting membranes of the uterus, its development is rapid. A slight outgrowth into the central cavity is the first noticeable development.

At one month, the ovum has increased 10,000 times its size at fertilization—it is about one-eighth inch in length, the extremities are noticeable, and it is possible to distinguish rudiments of the several parts of the body.

At two months, the ovum is the size of a lemon. The fœtus (embryo child) is about three inches long and is suspended in a fluid within a membraneous sac. It is now attached by the umbilical cord to the placental portion of the sac. By this time, the nutritional development, as well as the elimination of waste, is being carried on by the system of osmosis, as already mentioned.

At four months the ovum is about the size of an egg-plant, and the child completely formed.

At nine months, when ready for delivery, the child lies within the uterus, which has strengthened and grown, until it resembles a water-melon in size and shape.

The essentials for development and growth of the embryo child are derived from the blood-stream of the mother. When any element is lacking in the blood, it is promptly drawn from the maternal body itself. Here is the evidence of the importance of correct diet for the expectant mother. The tooth-development of the embryo child begins as early as the third month in pregnancy. This is the time to assure firm, well-spaced teeth for the child, by supplying plenty of the necessary elements—particularly calcium, phosphorus, and essential vitamins. Elements necessary for bone development are identical with those required for development of teeth. A strong, well-formed skeletal structure for the child will be assured by following a correct dietary.

During a normal pregnancy, certain chemical elements are stored in the mother's body—probably in anticipation of the physical crisis of delivery. Correct diet will be planned to take care of this condition.

The expectant mother should remain in perfect health. The two most noticeable changes in her body will be the growth of the uterus, and the development of the mammary glands in preparation for lactation.

As the development of the embryo child proceeds, the general metabolism of the mother is influenced. In a normal pregnancy the health of the mother frequently is found to be improved. Motherhood often results in a new degree of well-being for women who have previously enjoyed an indifferent state of health. In these cases, correct and sufficient diet has been followed, as well as reasonable care taken in regard to rest, exercise, and a happy state of mind.

The mind largely controls the physical reactions of the body at any time. It is most necessary that the expectant mother keep happy and serene, by continuing her interests in general in the earlier months, and by creating new interests for herself. This will help to keep her system functioning normally.

Worry, excitement, nervous strain are to be avoided because of their effect upon the digestion, metabolism, and general functioning of the body. There is no nervous or vascular connexion between the mother and child; thus it is impossible for a shock or strain affecting the mother, to be reflected in the child, except through alteration of the blood-supply, and that only temporarily. The old fear of maternal impressions causing physical harm to the unborn child was founded upon a fallacious theory.

The mental poise and frequently the physical well-being of women may be disturbed by uncertainty of the existence of pregnant condition.

Cessation of menstruation is likely to be the first indication. Enlargement and slight irritation or tenderness of the breasts will probably be noticed. When there is a feeling of nausea or vomiting upon waking in the morning, the condition is very likely. If there is enlargement of the abdomen and the frequent desire to void urine, in conjunction with the indications noted above, the condition of pregnancy is almost conclusively established.

But, except when the physician has made a thorough pelvic examination, the only positive sign of pregnancy is noticeable, independent movement of the fœtus; or ability to feel, through the abdominal wall, a part of the body of the fœtus, as the arm or leg.

Probable date of confinement is estimated by counting forward 280 days from beginning of last menstrual period. Average time of gestation is 273 days. An error of two or three weeks may be made in the calculation, due to uncertainty of time of ovulation in relation to time of menstruation.

CHAPTER III

PRE-NATAL CARE

PRE-NATAL care—the complete supervision of the mental and physical hygiene of the expectant mother—is now recognized as being a most valuable factor in the life and health of the child. Upon this care depend the size of the child at birth, his vitality, his very structure. In looking forward to the coming of the baby, the expectant mother should regulate her life in every way, so as to assure her mental serenity and physical well-being. For not only the welfare of the child, but also the safety of the mother at the critical time of delivery, and her subsequent ability to nurse her child will be determined by the physical condition and mental equilibrium of the mother. She builds these for herself.

A thorough understanding of the physiological aspect of the process of reproduction will dispel the hysterical helplessness of the inexperienced young woman who is terrified at the discovery of her condition. Such women should endeavour to see their own condition as reflecting the universality of birth. Birth is only one expression of growth, the power that keeps this old world turning in the right direction.

With proper care and attention, plus favourable home-conditions the expectant mother can give herself over to enjoyment of what should be one of the happiest periods in her life. It is presupposed that both parents are anxious for the child. They plan for his coming, look forward to his training and education. A new and unselfish quality is added to their relations. Their outlook on life is broadened and enriched. And so the expectant mother is contented.

At the first indication of pregnancy, the woman should consult the best obstetrician available. In illness a specialist is not usually advised. But it must be remembered that pregnancy is not illness. It is a condition that should not impair the health of any woman, but a condition to be carefully watched, so that no illness or abnormalities develop. The best trained, most experienced obstetrician will probably name a larger fee than another doctor. The best advice is not too good at this time, and it is worth a special effort to engage a physician upon whose judgment the expectant mother can rely. Confidence in the medical adviser is of the greatest importance.

Fear is often instrumental in delaying the woman's visit to her doctor. She is perhaps unaware of the nature of the examination. Fortunately the physician's personality is usually of the type that will reassure his patient and put her at ease. The reason for this in all probability is, that unless he has such a personality he cannot long survive as a medical doctor —and certainly he can never reach the point where he could be rated a reliable obstetrician.

The patient should be prepared for a thorough pelvic examination, heart and blood tests, and examination of lungs, abdomen, and chemical test of urine. Frequent physical examinations and analyses will be made throughout pregnancy. The physician will have his own schedule for each patient.

The nurse will probably be recommended by the physician. Every woman should have her own nurse, even in a well-equipped hospital, which is the best and safest place for confinement. It will be supposed that the delivery is to be made in a modern hospital. As the date for confinement may be erroneously estimated, there should be a definite understanding as to when the nurse shall be available. Patient and nurse will be happier and easier if there is a feeling of friendliness between them. The question of clothing for the child and other supplies for the comfort and care of mother and baby can be settled upon consultation with the nurse. All preparations should be made in early months, so that there will be no hurry or worry at the last moment.

This chapter will be of necessity rather short, for the very simple reason that no special diet is needed for pregnancy. All the expectant mother needs for nourishment is proper foods, such as she always needed before pregnancy, but the need for these is more poignant during pregnancy than when she was feeding merely herself, without thought for the creation of a perfect infant.

Surely on mothers devolves the fate of the world, for it is the mother who creates, or who completes the creation originated by the union of sperm and ovum.

I have frequently been asked by women: "How can I be assured of having a perfect baby," and the answer is always: "Begin to live right and eat right five years before the contemplated pregnancy." It takes about five years to rebuild the body completely, to eradicate its toxic state fully and replace this with normal tissue, therefore, start now if you wish to have a perfect baby in five years from this time. However, do not let this worry you if you suddenly find yourself pregnant without this preparation, for starting with the end of the second month of pregnancy, the point at which the mother usually becomes firmly convinced that she is *enceinte*, there still remains time sufficient to perform wonders, and I have been in the habit of promising any mother at this stage of pregnancy unless she is unusually toxic, that if she will from that date eat largely of the base-forming groups of foods, and but little of the acid-forming groups, taking much of her food in raw natural form, as salads and fruits, with plenty of raw milk or buttermilk rather than meat or eggs, keep the colon up to date with the daily two-quart cool enema, and use the twice-daily cold sitz-bath and douche, she will not have to curtail her activities markedly in any particular, she can live a normal life, take any usual exercise, play her usual athletic games, and be assured of a far better pregnancy period, an easier labour, a better baby, usually a full period of lactation, and an almost complete absence of either those distressing accidental happenings during delivery or the serious infections that far too often follow an *accouchement.*

Diet! I often wish this word had never been born, for but few conditions require diet. All food that is fit to eat at all is permissible when desired and enjoyed, if the body is normal, if this is not taken in denatured form or adulterated or refined or embalmed, as so much ordinary so-called food too often is. The expectant mother needs good food more than the woman who is not creating a perfect image, but diet should be the farthest thing from her routine, if by diet one means any peculiar form of eating.

Desire will usually point correctly to the foods needed by anyone at any time, if we allow it to form naturally, without convention or habit, for the body craves those things of which it stands most in need at the time, and especially is this surely true of the pregnant woman. Who has not heard of the peculiar fancies of the expectant mother, as her body strove through intense desire for something urgently needed in this new creation? Let her apply to her eating-habits exactly the same rules as should govern anyone at any time, if she wishes to be continually well.

Let her get away from the misleading delusion that she is eating now for two instead of one and should therefore eat far more food than is her usual custom. This delusion has made many a bitter termination to an otherwise easy pregnancy, for when her hour comes she is in a toxic state, her tissues are poorly nourished, saturated with acid end-products, inelastic, subject to easy rupture, her labour difficult, tedious, and painful, and the great liability to post-partum infections is vastly increased.

I can look back to-day with the greatest of all the satisfactions that were mine as an adviser of expectant motherhood, to many families whose devoted mothers undertook to make themselves over for the sake of the expected baby, and who did everything told them, who continued to follow directions afterwards for the nourishment of their little ones, and whose families have lived, grown, gone through the various epidemics, usually without infection, or with but mild infections, and who are examples after many years of near physical and mental perfection. And among these children was not one single incorrigible child, one mental defective or physically deformed or in any sense a deficient specimen. These children were far more advanced mentally and more perfect physically than were those children born of mothers who followed conventional ideas in raising their families. Of course! Why not? If this were not the case then Nature is playing on her children a most ghastly joke, when she brings them into the world to such conditions as afflict the usual child raised by the conventional and mistaken standards of eating.

Let the expectant mother apply to her own feeding but three simple rules: First, never eat anything of any kind at any time unless distinctly hungry for the thing eaten. Second, make sure that the food selected is still food, not something refined or demineralized or denatured to a point that makes it a travesty as food. Third, if more than one food is desired at the time, make sure that these are chemically compatible with each other. This means that the same laws of combination are in force during pregnancy as at any other time. But let the expectant mother be more particular because of her blessed opportunity to create a perfect specimen of the genus *homo*, the very highest privilege that Nature gives to the human race.

If correct nourishment is desirable for any woman for herself, for her beauty of face or figure, or for her own personal health, it becomes infinitely more desirable if she is placed in the position of creator of another little soul that is to carry her image on to the next generation.

Now nourishment for the expectant mother becomes very simple indeed, when we consider that she is merely going through a normal process that is adding ever so little to her needs, so little that this increase is imponderable and needs no provision other than that given by Nature herself through the desires manifested at the time.

If the pregnant mother desires more food than when not pregnant, then let her have more, but do not insist on more because she is eating for two, for if she needs more she will desire more, and if she is the usual type, she has been all her life eating two or three times as much food as her system requires, for this is about the usual ratio of desire to need.

Let her continue a normal mode of living, because she is going through a normal experience, and let her have what she wants when she wants it and as much as she desires, if she will apply to all her food the three little rules laid down above. If she is living normally and feeling as well as she should she will not dread what is to come.

In addition to the regular task of elimination, the mother's body must take care of the waste products of the fœtus during pregnancy. Accumulation of waste products in the system will lead to minor ailments and, possibly, major illness. Plenty of cool drinking-water, and a correct dietary will be a great help in keeping the excretory organs functioning normally. The four organs of elimination are skin, lungs, bowels, and kidneys.

A daily bath with tepid water and soap will keep the skin clean and in a condition to pass waste products. In addition there may be a cool shower or sponge bath in the morning, followed by brisk rubbing with a rough towel. This will stimulate circulation and wake up the entire body, producing a glow within that helps to start the day right. During the later months, tub baths are not advisable.

A steady supply of fresh air must be provided for the expectant mother if she is to be kept in excellent health. Now more than ever, she needs an abundance of life-giving oxygen. She should sleep with windows wide open, or better, have her bed moved to an out-of-doors sleeping-porch.

Disposal of residue from protein foods devolves upon the kidneys. It is of the utmost importance that they perform their function thoroughly. Extra strain during pregnancy often causes impairment of these organs when an insufficient quantity of liquid is taken, or when there is an excess of meat, fish, or other protein foods in the diet. Regular chemical analyses will be made by the physician. At least a quart of urine should be voided within every 24-hour period.

There is sometimes a tendency towards constipation, due to pressure of the enlarging uterus with its increasing weight upon the intestines. Less than three movements daily will be insufficient. Regular health habits, drinking plenty of water, following a correct dietary and taking daily exercise, will tend to keep the bowels regular.

A visit to her dentist will follow closely the expectant mother's initial examination by her physician. All necessary repairs should be made at once, and regular examinations should follow throughout pregnancy. Regular brushing must not be neglected. Any deficiency in diet will affect the mother's teeth first. With wrong foods or a lack of proper foods, changes take place in the normal development of jaw and tooth structure of the child, which may have serious consequences. The inner section (pulp) of the tooth, being deprived of essential minerals, will not develop properly; and the enamel (outer layer) will surely be soft and chalky, breaking down early. Lacking full development of the teeth, the dental arch does not grow and widen as it should. All of the first set of teeth are formed in the jaw structure at birth, and rudiments of the second set can be detected. It is easily understood then, why a diet supplying the needed elements is so important.

In order to realize her hope and fulfil the duty of nursing her baby, the expectant mother will see that the breasts are developing normally. Clothing comfortably loose must be worn, so as not to retard the growth of breasts and nipples. During the last month or two, a small amount of plain white vaseline may be lightly massaged into the nipples at night and washed away the next morning, with warm water followed by cool water. Any special condition should be reported to the physician.

During the entire period of pregnancy, the expectant mother should have at least eight hours' sleep at night. It will be advisable to retire at an earlier hour than usual, if she becomes unusually fatigued, as some women do, particularly during the last months. Every busy woman should have a rest period in the middle of the day. For the pregnant woman it is imperative. In addition to this, fifteen minutes of complete relaxation during the morning and again in the afternoon, will prove beneficial. These periods should be spent alone in a quiet place. During pregnancy every woman needs some time for peaceful meditation. In these moments she strengthens her soul in anticipation of the crisis wherein woman may attain the full measure of her being.

Daily exercise is important to the health of the expectant mother. She should arrange to have at least two hours each day out of doors, part of this time to be spent in exercise, unless she is already tired. Fatigue is to be avoided. The woman who is accustomed to a quiet domestic life, or who has been following a sedentary occupation, will begin her exercising cautiously. Walking is an excellent exercise but must not be overdone at first. Distance may be increased gradually. When the expectant mother has been active in sports, she may (on the advice of her physician) continue those that are not too strenuous.

Besides the advantage of stimulating the body in digestion, assimilation, and elimination by improving circulation, there are two other distinct benefits derived from the time spent out of doors.

The first, a happy effect upon the mental state. Mental poise is increased by pleasant impressions. Observation of Nature will produce desirable reactions. The expectant mother will profit by contact with growing, beautiful things. If possible, she should spend the warm months of the year in the country. The next best thing will be walks in the open country, or in the more quiet parts of the parks, if she is living in the city.

The second benefit will be that derived from direct sunlight. Granted the expectant mother is supplying her body (through correct diet) with plenty of calcium and phosphorus for building tooth and bone structure, these elements are not, however, made available for use in the body unless there is also present a sufficient amount of Vitamin D—the sunshine vitamin which influences the metabolism of the mineral elements is osseous tissue. This vitamin is known as the calcium-depositing or phosphorus-mobilizing factor. It helps the body to utilize the calcium and phosphorus present in the tissues, but cannot create or manufacture these elements—diet must supply them. The expectant mother also determines the susceptibility of her child to rickets, by restriction or limitation of the store of Vitamin D in his body. In addition to determining availability of the necessary elements for building osseous tissue, the faulty metabolism of other minerals may be due to lack of sufficient Vitamin D.

During the winter months or periods of inclement weather, when direct sunshine is not available, irradiation by certain types of light rays may be substituted, two or three times a week, on the advice of the physician in charge. When possible, the entire body should be exposed to the rays, either sun or artificial. But fortunately, the vitamin may be developed in the ergosterol contained in even a small area of the skin, and distributed throughout the body in satisfactory amounts.

This important Vitamin (D) may also be supplied in part, by certain foods. The expectant mother will be well repaid for her trouble if she will study a reliable chart or other authentic source of information on the subjects of vitamins and food analysis. She can determine thus just which foods will supply the needed minerals and vitamins for her welfare and the development of her child.

Clothes are a matter of interest to any woman at any time. The subject intrigues her inherent vanity. During pregnancy this vanity may suffer numerous shocks, and so needs all the encouragement it can be given. There is neither necessity nor excuse for unbecoming clothing during this period. Lovely garments are being fashioned by expert designers for the particular needs of the expectant mother. In addition to attractiveness, the other requisite feature of clothing is that it shall be sufficiently warm, without being cumbersome or heavy. The average human body is overdressed, judged from the standpoint of health. It should be remembered that the skin is not just a covering material, but an essential organ that reacts to heat, cold, and various degrees of humidity in its dual rôle of regulator of body-heat and member of the excretory system. It was recently remarked that " man is the only animal having a body so ugly that it must be hidden by clothes." A sad reflection upon the care and nutrition of the human race, surely.

Let the expectant mother wear as few pieces of clothing as possible to save the bother of numerous straps or buttons. A specially designed *brassière* of the uplift type will be a comfort. It is possible to buy such a garment that is, in addition, so designed as to provide protection of the nipples. An abdominal support may be worn to relieve back strain and other conditions, due to weight in the later months. But the physician should see and approve any such garment before it is worn. No stays or bones must be worn over the abdomen. Shoes built with low heels are the only type to be considered. The forward thrust of the position assumed when high heels are worn, causes the abdominal muscles to sag and pull the internal organs out of place.

Not many disorders are peculiar to pregnancy, but certain disorders are predisposed by the pregnant state.

This means that pregnancy is a crisis in the life of the female that tries the body as to its ability to rise to the full occasion, and if there are diseases latent it is not unusual that these are lighted up into activity by the pregnant state, though oftener it seems that nature, in the interest of the new creation that is forming, maintains an apparent *status quo* till after the completion of the creation, and then the mother fades rapidly and falls a victim to some form of organic disease. Instances of this are frequent in the tubercular, when the mother who was perhaps feeble before pregnancy, seems to take on a new lease of life and new appearance of vitality, and goes through her pregnancy apparently much improved in health, perhaps has a fine specimen of baby, then fades and dies in a few months.

The occasional mental aberrations that accompany the pregnant state are creations of fear, but fear is but a logical result of physical incapacity, the culmination of an increasingly toxic state that makes of all function a poor semblance of the original intended by Nature.

Several cases of epilepsy have been noted that developed soon after the pregnant state was initiated, and that disappeared with the termination of gestation.

Also, in the writer's own experience in well over two thousand cases, epilepsy developed several years before marriage and pregnancy was held in abeyance during the period of gestation, and reappeared soon after the termination of this. Vague nervous symptoms sometimes appear at various stages of pregnancy, even actual insanity, and when the pregnancy terminates, the normal is quickly regained.

These also can be traced to a toxic state of the mother, the proof being that when the toxic state is fairly well in hand the insanity or the peculiar form of nervousness present disappears, and the remainder of the pregnancy is passed in a more normal mental state.

If the expectant mother is eating correctly and keeping up with elimination she will not suffer from the extreme nervousness of the mental aberrations that too often accompany this state in the average very toxic woman.

It is in the physical state of the mother that pregnancy shows most marked results, for out of the physical equipment must the new creation come.

Nature is most kind to the growing fœtus, and we see again her constant effort to create the perfect individual, for she will accomplish this at the expense of the mother, even though she is robbed fatally in the interest of the infant.

The vomiting of the early stages of pregnancy is but the effort of Nature to purge a body too toxic to support a proper creation, and every one is familiar with the dreadful vomiting of pregnancy that persists through the first few months, often reducing the mother to such a point as threatens complete collapse, then perhaps suddenly subsiding, to be followed by a peaceful five or six months, till labour ends the term. That this vomiting is from a toxic state, and wholly in the interest of a better and cleaner body, is evident when we apply the simple rules of rapid detoxication by purging, for the whole thing subsides promptly and is followed at once by nearly normal conditions.

One instance of this will illustrate in extreme form the fact of the toxic background of all these cases of extreme vomiting in pregnancy. There are literally hundreds of others treated in the same way and giving the same results, without one case to contradict the dictum that vomiting in pregnancy is merely Nature's way of cleaning up a very undesirable house for the little fœtus forming.

This lady was thirty years of age, with history of seven years of married life. Twice before she had become pregnant, and each time vomiting had reduced her to such a state that her life was despaired of, and her physician had terminated the pregnancy to save her. She was again pregnant, and had reached about the end of her third month, and her physician had again decided that the life of the fœtus must be forfeited for that of the mother, when a neighbour who was under my care brought her into my office almost too weak to sit up and the picture of woe.

She was emaciated, yellow, jaundiced, weak, and utterly exhausted, saying that everything she ate came up again, and she had to vomit at frequent intervals throughout the day and night even when there was nothing in her stomach to come up. She was ordered to take three heaping tablespoonfuls of Epsom or Glauber salts as soon as she got home, and was assured that even though water and everything else habitually came up again, the chances were that the salts would not, and so it turned out. For three days she took no food, but instead three heaping tablespoonfuls of salts, and the resulting thirst was to be satisfied with water slightly acidulated with lemon juice. She never vomited again. She carried her baby to full term and had one of the prize babies of her city, and has since raised a nice little family, of which she is very proud, but regrets the two little ones lost through not knowing what to do when pregnant and sick enough to die, when all the time she was only toxic.

It is a strange thing, but in all these cases that will tolerate nothing, perhaps not even water, the salts will stay down, and the result is the sudden sweeping out of an acid flood that relieves the system of much work it would have to do otherwise by persistent vomiting and inability to take food till a less toxic state was reached.

To those who have never given the matter much thought it would naturally seem that such a violent purge would endanger the life of the fœtus also, but in not a single case was this termination present, and it would seem that Nature accepts this aid gladly and makes all possible use of it.

You have often heard it said that for every baby the mother must lose a tooth. This is not so in a strictly numerical sense, but pregnancy is often very hard on the mother's teeth, and she may lose many with even one child. This is not strange when we realize that the average individual of either sex is woefully deficient in lime salts, through use of lime-poor foods.

If the mother is deficient in lime salts, calcium, it is too bad for her teeth and bones, for the fœtus must have lime in the creation of the skeleton, and if the mother cannot spare enough she will suffer a lime shortage rather than the child, for Nature looks after the infant as far as this is possible with the supply of materials on hand.

Sometimes not enough lime can be secured, so the infant is poorly formed, rachity (rickety), suffers from delayed dentition, narrow jaws, crowded teeth when these do arrive, and too often develops enlarged glands, liability to tuberculosis, all because the mother did not have enough lime to fill the bill. And what of her? Her teeth are ruined, her hair falls out, her complexion is marred, she is thin and weak. Sometimes the body-creation cannot even be completed for lack of lime salts, as witness the hare-lip, the *spina bifida*, and poorly formed skeleton. All this could have been avoided if the mother had known how to eat, even if she began to eat correctly as late as the end of the second month of her pregnancy.

Pressure of the enlarging uterus very often interferes mechanically with the flow of the return blood from the lower extremities, with enlarging leg veins, varicose veins, that are so troublesome to many. These also are partially traced to a toxic state, for toxic blood is viscid blood, and its return to the heart is torpid and accomplished under considerable pressure from below, so the tendency to varicose veins is present in other conditions than pregnancy, where pressure of the growing uterus is not present to account for this. It is supposable that if the blood were as fluid as it should be the pressure of the gravid uterus would not cause caricosities, for we do know that not all pregnancies are accompanied by this condition. Piles or hæmorrhoids are also caused in the same way, and these also are but enlarged veins.

Pregnancy predisposes to this state, through pressure, but not all cases of hæmorrhoids follow pregnancy, we know.

If the mother's blood is as good as it should be it is extremely unlikely that varicose veins would ever occur in either location, so this too frequent handicap of the expectant mother would not be evident.

Leaving out the nightmare of syphilis, it is perhaps conservative to say that all the physical and mental disorders of pregnancy are nutritional.

When we reflect on the dreadfully toxic state of the average individual in other conditions, it is not strange that during this crisis of creation, evidences of the state of internal uncleanness crop out.

The expectant mother should clean house promptly as soon as she discovers her state of expectancy, and afterwards she should keep clean, cleaner than the woman who is not expecting this miracle of Nature.

She can do this through an initial three days of intensive purging and confining the intake of food wholly to fresh unsweetened fruit juices, and in so doing she can escape much of the usual sickness of the early stages of the almost usual type of pregnancy, and if she will follow this period with the daily two-quart cool enema, and select her foods on the lines laid down above, eating those things chiefly that are most desired, making sure they are not refined or denatured, and combining them compatibly, she will find her pregnancy not the terror that so many picture it, but a very serene and enjoyable time, for she can be just as well during pregnancy as at any time.

One sweet little high-school graduate came to me several years ago—a doctor's daughter, whose father preferred not to make a momentous decision for his own daughter—saying that she wanted very much to get married, but she loved the young man too much to inflict her very poor health on him for life. She asked if I thought it possible that she could be put into condition for conjugal life in the three months before her announced date for marriage, three months that seemed all too short to her in which to change an almost invalid condition. She was assured that three months would see her happy and well, if she lived as directed.

She had no organic disease, but she was toxic, an only child who had been improperly fed from infancy.

I was present at her wedding, and she looked radiantly happy and well, and so reported herself.

She became pregnant almost immediately after marriage, but the change in her state of health seemed to remove all fear of the outcome, and she passed through a perfectly normal pregnancy, with easy and natural termination, no accidents of any kind, had a perfect baby, with no after difficulty, and had a sufficient period of normal lactation.

No doctor ever prescribed for her or her baby, even her own father finding no occasion for worries, and she went on to have a family of three beautiful children during the next five years, as perfect a little family as ever was, with the same uneventful and placid pregnancy, the same nearly painless termination, and the same freedom from any complications of any kind whatever.

She ate right, she persuaded her husband to do the same, and her little children have been raised without tasting refined foods, have been always fed compatibly, and have never needed medical care of any kind.

She is but one of many little mothers who have done the same thing, and they are raising families that will be a credit to them, to their community, and to their state, and an exemplification of what Nature will always do when we allow her full rein and supply her with everything she needs for operating supplies and rebuilding materials arranged in compatible order and complete in every detail.

CHAPTER IV

CONFINEMENT IN HOSPITAL

A WELL-EQUIPPED hospital should be chosen for the confinement, and all arrangements made several weeks in advance of delivery date. Labour, the process of expelling the child, is an act of nature, but one not always unattended by danger. Due to the facts that (*a*) women are becoming less well-developed physically because of less muscular activity, and (*b*) the size of infant's head having increased in proportion to brain-development produced by evolution, science has been unable, so far, to ease the process appreciably. Having watched the patient carefully through the confinement period, the physician will usually know whether to expect a normal delivery. But there is always the chance that the delivery may develop into a surgical case, and the hospital provides safeguards for mother and child that no home can supply.

Having made her acquaintance, the mother would do well to invite the nurse to accompany her when choosing the hospital room. The professional person will recognize all the unfavourable, as well as the good points of the available accommodations. At this time a complete list of articles to be provided for mother and baby will be secured from the hospital nurse in charge of obstetric cases. This list can be supplemented by articles suggested by the mother's nurse.

All arrangements being made at the hospital, the mother now will plan for the care of the household during her absence and later convalescence at home. There must be no worry or feeling of responsibility for anything, if the mother is to keep her mental poise through this trying time.

If possible, the nurse should have charge of the mother during the last week or two before delivery. She will detect the first sign of approaching labour and prepare the patient for the trip to the hospital. In the absence of her nurse, the mother will notify her physician at the first appearance of premonitory symptoms, *i.e.*, (*a*) discharge of blood or blood-streaked mucus, which may occur from a few hours to twenty-four hours before onset of labour, (*b*) sharp pains, usually starting in back. The nurse should be available now, and can be of great assistance in keeping the patient calm. The mother needs all of her energy for her own and her child's welfare. If all preparations have been made as advised, she can cheerfully approach the great task of bringing her child into the world.

The happy outcome of normal childbirth is largely due to skill of physician at delivery, and care and asepsis of nurse during convalescence of the mother.

Following delivery the mother needs complete rest in bed to give her body time for adjustment to normality and for development of supply of breast-milk. She must remember that the enlarged uterus is easily misplaced by strain of standing too soon. The muscles and ligaments supporting the abdominal organs have been stretched and are now relaxed. They must be given time to regain their proper size and tone. Where there are no complications the patient can usually leave the hospital within two weeks, but should have complete freedom from duties for at least one month following her return home, with regular rest-periods, carefully regulated diet, and no excitement. The period following the birth is a critical one, during which extensive physiological changes take place. Care during this time will determine the mother's future condition. The uterus shrinks, the ligaments become taut, the abdominal muscles return to normal size, the lining of the uterus is replaced, and new tissues are built to take the place of those discharged as waste.

Upon her return home, the mother's room should be so situated that it will receive plenty of sunshine, and means of adequate ventilation must be provided for any kind of weather. Body-massage, gently administered, will add to comfort of the mother as well as assist in returning her body to normal. Visitors should be few in number and each restricted to a short period. The convalescent must be spared the frightful task of entertaining boring callers.

At the end of six weeks, the healthy mother will be ready and anxious to resume her place in the world. At this time she should have a final examination by her physician. Many women emerge from the puerperal period with buoyant health and spirits. They find the world a more charming place than ever before, due to their new vitality and additional interests. The experience of childbirth frequently marks the beginning of the period when woman may achieve her greatest accomplishments. But she must not hurry herself.

This country requires registration of birth of every infant. The birth of a child must be reported to the Medical Officer of Health within 36 hours, and to the local Registrar within 42 days of the date of birth. In order to compile accurate, vital statistics, this record is necessary. It is of value to the individual as well, in establishing his age, personal identity, citizenship, or right to inheritance.

At least a month before the baby is expected, his nursery should be planned and complete preparation made for his occupancy. Since, in the average home, one room will be used for both day-nursery and sleeping-apartment, it will be advisable to choose a fairly large room, preferably with southern exposure.

Quiet is desirable, but the child should become accustomed from earliest infancy to ordinary sounds of family life. If there is neither a special bathroom for baby, nor a stationary infant's bath-tub in the nursery, proximity to the bathroom should be considered, as also convenience to the mother's room.

Several windows are desirable. The double-sash type moving up and down, will be best. They must be so placed that adequate ventilation can be secured in all weathers. It is necessary that windows shall be well fitted so as to prevent draughts in storms, and tightly screened for protection from insects. Full-window-sized screens on hinges are most satisfactory, both in regard to ventilation and ease of cleaning windows.

As the child grows older and begins to climb about, additional protection in form of bars should be placed across lower part of windows. Both light and dark roller shades should be hung at each window—preferably ivory and dark green in colour. On bleak days, the light shades can be drawn to prevent glare, and in sunny weather, the dark shades (wide enough to cover frames part way) will need to be adjusted. Both should be hung on adjustable fixtures, so that any part of the window may be covered. Some type of storm-ventilator should be provided for winter. Simple glass-curtains of washable cotton material may be used on each window-sash. They should be held in place at top and bottom of frames by small rods. Any other curtains or draperies must not be permitted, as they would interfere with ventilation and are to be looked upon as dust-catchers.

The most desirable method of finishing the walls is by painting in a neutral shade. Dull buff, pale grey, or very light green are permissible colours. One very delightful nursery has walls of misty grey, woodwork of warm ivory, a ‘ drop-ceiling ’ the bluish grey of fog on the sea, decorated with faithfully placed dull-gold stars, representing a few of the better-known constellations. A frosty new moon rides high and smiles shyly down upon the wee girl, who has become quite friendly with Mars and ‘ Jus ’ (Jupiter).

If walls must be papered, the washable type of paper should be selected. Care must be taken to prevent a glaring or shiny finish.

An indirect system of lighting is desirable, thus avoiding any brilliant or direct rays. If an overhead light be used, it must be shaded carefully. One light on each side of the room will be helpful, and at least one electric outlet is necessary.

The ideal nursery floor is of linoleum, or composition flooring which is quiet and fireproof. Colour may be introduced here, but should be kept to quiet tones. A wood floor, smoothly painted, or varnished hardwood floor is suitable. Avoid waxed floors. Small washable rugs may be placed as desired.

Hot-water heating provides the most uniform temperature and is to be preferred to steam because it is quiet. However, this type of heat reduces the humidity of the room, which must be regulated by placing an open vessel of water on one of the radiators. A fireplace adds charm and a feeling of cosiness to the nursery, while providing a means of ventilation.

Open fires must always be protected by a heavy wire or non-breakable glass screen. Gas heat or oil stoves should never be used in the nursery, even as auxiliary methods. Should it become necessary in an emergency to employ either, the infant or child must never be left alone in the room. The dangers of asphyxiation or fire are too great.

Properly to gauge the temperature of the nursery, the thermometer will be hung about 30 inches from the floor. Daytime temperature should stay between 65 and 70 degrees, night 60 to 45 degrees.

Nursery furniture must be washable. All furniture coverings, scarves, etc., must be plain and strong enough to withstand frequent laundering. Unnecessary frills and lines will best be avoided. There should be order, simplicity, and a sense of space rather than an appearance of luxury. The violently coloured, unsanitary knick-knacks and toys made over crazy patterns must be left in the shops of the unfortunate merchant who invested in them. A ridiculous, silly-looking green dog is, to the small child, neither ridiculous nor silly nor odd-coloured. It shapes his idea of ‘ dog ’—and what a surprise he will get when first he meets a genuine specimen of the genus canine! The real dog will look foolish to him. He will have to adjust all of his ideas to permit his accepting this as 'dog.'

Every child should sleep alone. A metal crib with high, movable sides is best. Woven wire springs are the preferred type, and are practically always used on regulation metal cribs. A felt or hair mattress made to fit the crib, should be used. Over the mattress is spread a rubber sheet. Next a quilted pad, smoothly covered by a linen or cotton sheet large enough to tuck under the mattress securely. This method provides a smooth, soft, sanitary bed. Several soft woollen blankets, the same size as the sheets, will be needed. Two soft, wool-filled comforts, crib size, will be found convenient.

The normal child, properly fed and cared for, will gain in weight regularly. There is but one sure way to know whether he is gaining as he should, and this is by weighing him on accurate scales at least twice each week. Nursery scales equipped with a basket are easy to use and attractive in appearance. They should be placed upon a solid, small table, adjacent to another table of the same height, which will be used for dressing the baby. This dressing-table should have a fitted cover, made of a heavy, white, cotton blanket, or some padded material, with ties of heavy tape to fasten it securely at each corner. After using, the pad can be hung in the sun for a short time and then folded away, leaving a washable table for any use. Both tables should be of a convenient height and equipped with gliders (not rollers).

If the nursery boasts one of the lovely porcelain tubs made expressly for his Majesty the Baby, it will be possible to have its height regulated to suit the mother at the time it is installed. The tub will be placed in one corner of the room near a radiator and window. A screen with removable, washable cover will conceal its presence, and serve also to shield from draughts. Dressing-table and scales should be placed close by.

Attractive nursery furniture is made with washable finish. Ivory is the best choice in colour. A chest of drawers for clothing and bedding, a cabinet sufficiently large to hold all supplies needed for bath and toilet are adequate at first. A small table and chair for the child's use may be added, as also a high chair with tray and other desirable pieces. One straight chair without arms, and at least one low, comfortable chair with high restful back should be provided for the mother's use. An amply large clothes-hamper, and enamelled, covered pail for soiled clothing, should be kept out of the nursery or in a cupboard.

The sanitary nursery requires daily care. This cleaning of the room should be done while the baby is out of doors in the morning. Windows must be opened wide. All clothing should be removed from hamper and pail, and all used bedding either aired or sent down with other (infant's) laundry. Crib and other furniture, as well as all woodwork and floors, will be wiped with a damp cloth wrung from water containing a little borax. Rugs should be taken from the room and cleaned and aired. Once a week they must be washed.

Careful planning of the nursery, arrangement of the baby's own supplies in drawers and cabinet, will provide the mother with hours of happy occupation, during the last month of waiting.

CHAPTER V

LACTATION

LACTATION is the function in all mammals of producing a food specifically adapted to the needs of the young. There is no 'just as good' substitute for mother's milk. Any other food given the infant causes the ingestion of elements foreign to his digestive capacity and body needs. As a rule, the chief difficulty presented in breast-feeding is the tendency to produce less milk than needed for the nourishment of the child. The importance of breast-feeding must be impressed upon every expectant mother. The infant should be nursed to ensure normal development and to protect him from disease.

The mother's capacity to produce milk will depend upon her general health and hygiene, upon her diet and metabolism, and upon proper stimulation of the functional activities of the mammary glands, by regular emptying of the breasts.

The chemistry of mother's milk changes to conform with the natural development of the child. About forty-eight hours after delivery, a liquid known as colostrum is available for the infant. It is lower in fat and higher in protein content than the later and permanent secretion. It is a thick, yellowish fluid with a slightly cathartic action. Gradually changing, it becomes in about a week, a thinner and somewhat bluish liquid. At about four weeks the composition has become stabilized. The colour is bluish white. It is alkaline in reaction. The function of lactation usually continues for from nine to twelve months.

Complete rest for at least six weeks after delivery, provided adequate, correct foods are taken, will be a great factor in the milk-production of the mother. She must keep her mind serene and her emotions completely under control. Anger, depression, worry, or excitement will affect the milk. A highly nervous condition in the mother reduces the flow of milk and affects its digestibility, by causing changes in the quantity and chemistry—the fluid at such times may be low in fat and high in protein content. It is possible that, in extreme cases, toxic elements may be present.

The importance of a healthy body for the nursing mother cannot be too strongly stressed. Care must be taken to supply the increase in needed elements, especially calcium, iron, and phosphorus, and an abundance of essential vitamins, through scientifically correct food. Her diet will also solve all elimination problems, if skilfully planned. No drugs or oils will be needed to produce internal cleanliness.

As civilization has emerged from savagery, as we have grown wiser but weaker with each succeeding generation, so has the mother become weaker, less able to withstand the rigours of pregnancy, delivery, and lactation. To the uncivilized native who has always lived amid the most primitive conditions, the advent of a child meant scarcely an interruption to the daily tasks and enjoyments, and lactation for the full period was not unusual, as in civilized countries, but was practically universal, each mother being able fully to nourish her child until it was able to eat for itself of the foods provided so abundantly by the soil of every country where man can live.

Now what is there about civilization that determines this failure in the ability of the mother to nourish her child fully?

It is not surely in the fact that the civilized are wiser, because they have a literature by which they may be guided from the experience of others, or that they are privileged to enjoy many of the comforts denied to the more primitive. Rather it is in the fact that accompanying our civilization is everywhere evident the activity of the food manufacturer, the refiner of Nature's products, the spoiler of her best provisions for the welfare of her highest ideal of creation.

Lack of the outdoor activity of the savage is of course a large factor, for Nature builds the physique to stand the strains imposed by occupation and environment, and the more strenuous these are the stronger does Nature build the physique. Escape from the rigours of severe labour, too much confinement indoors, absence of the direct rays of the sun, all these play a part in weakening the resistance of the modern mother. But as compared with these factors, that of too refined a standard of feeding is of so much greater importance that we would do well to correct this first, and then the body can the better withstand the lack of exercise and fresh air and sunlight. And however perfect the health may seem, it is still a fact that it is far from perfect if the mother is unable to furnish food from her own resources for her infant.

The frantic efforts put forth after labour to stimulate milk-production are of little avail, as every woman knows, for they have all been urged to take malt, fats, nuts, sugars, and starches, with the idea that these means will furnish milk, and if they fail this is set down to the well-known fact that there are those who cannot nurse their babies.

There is no diet that will make a milkless mother give milk enough for her baby, for it is too late greatly to affect milk-production after the baby has arrived.

To supply the body with those foods that will furnish adequate materials for a sufficient flow of the right sort of milk is a matter of four or five years, which does not help the immediate case greatly.

To ensure adequate milk it is necessary to go into training for this several years in advance of the need. A case will illustrate this:

A little mother of twenty years, who had gone into pregnancy with her eyes shut, was unable to nourish her baby, which had to be raised by artificial means, as is the case with a majority of babies nowadays.

She had changed her manner of selecting and combining her nourishment about the middle of her term, with the above failure as a result.

Two years later her second child arrived, and by this time she was able to furnish abundance of milk for several months, when again the supply became insufficient and artificial feeding had to be undertaken.

But the first baby was delicate, while the second was robust.

In another two years the mother was a model of health and endurance, and again a birth, each easier and more natural, and the third without in any way seeming to deplete the reserves of the mother.

The third baby had entirely sufficient nourishment for a year, and I am satisfied that even two years would not have reached the end of the lactation period, as when the baby was weaned the supply was adequate for every need and was of superior quality, with the normal percentages of fats and sugars.

The third baby has always been perfectly well, has escaped the usual infections of childhood, and colds and constipation were unknown.

I am sure you will see the point in this recital of one clinical case that seems to prove that it takes more than a few months of right eating and living to guarantee a supply of the right kind of milk for the complete nourishment of the infant, though there are very many more cases that furnish exactly the same sort of proof.

To learn to eat rightly is to make sufficient lactation a thing not problematical but a definitely expected result in every case.

By eating rightly I mean the avoidance of the devitalized and refined foods ordinarily furnishing the chief dependence in the usual family, and seeing to it that even the natural foods on which reliance is placed are not too thoroughly denatured by cooking. It means dependence chiefly on the base-forming groups, the raw salads, and fresh unsweetened fruits.

It means the correct combination of even the right foods, to avoid the usual fermentations resulting from the inability to digest fully the carbohydrate foods, the breads, cereals, starches of all kinds, sugars of every sort, all of which add fermentation to their other acid-forming proclivities if taken in conjunction with acid fruits or concentrated proteins, such as meat, fish, eggs, cheese.

Let desire point the way to the foods selected for each meal, but make sure the article desired has not been refined. Get the things desired if possible, with this one reservation, that they must still be in the form of food. However many articles are desired at the same meal, make sure that these are so combined that the starches and sugars will have their necessary alkaline medium, else they will never be fully digested, and their residues will ferment when they reach the torpid colon.

This is not diet in any sense of the word, but plain common sense, and while the very same rules should be followed by every one, they are more especially important to the mother who wishes to have a perfect baby and nourish it perfectly until Nature has provided the equipment of teeth to permit of its full nourishment on the natural foods plainly intended for nourishment of the human of any age.

The daily bath with tepid (never hot) water and soap, followed by a cool sponge or shower, will assist in the work of elimination. Personal daintiness is dependent upon physical cleanliness. When the young mother resumes her activities after the arrival of her baby, she enters a new and extremely busy world, especially if she assumes the entire care of her child. Her day will be crowded, but may she never let the demands upon her time be so all-encompassing, that she neglects any item in the most fastidious care of her person.

Centuries past some far-sighted male, looking to his own ease, coined the word 'Duty' and attached thereto the invisible label 'For women only.' Since which time the female of the species has rushed madly or struggled stupidly (according to her nature) through her years of motherhood, hearing ever the ominous ring of that ugly word whenever she has wished for leisure or a little luxury for herself.

The young mother will do well to close her ears at times to the too insistent call of duty to her child, her husband, her home. She must have sufficient rest; that means at least eight hours at night and at least one rest period during the day. Not less than two hours each day should be spent out-of-doors when the weather permits. A brisk walk in the morning will do wonders for the complexion as well as clear the mental atmosphere. Recreation that brings social contacts without over-excitement is essential.

Should any difficulty develop in the natural feeding of the child, the physician must be consulted. As has been mentioned, the tendency to produce an insufficient quantity or a poor quality of milk, is the most prevalent trouble. Where there is an insufficient or faulty diet, the mother will produce less than adequate nourishment for the baby, or her own body will suffer. The quantity of milk can be increased by correct food, and the quality modified as well. Any physical irregularity such as deformed palate, will hinder the child in nursing. Special devices must be provided for feeding such children.

An infant fed naturally may not need any supplementary feeding of fruit juices for the first month, since the mother's milk rarely lacks Vitamin C—the important anti-scorbutic vitamin supplied by fresh, unsweetened orange or tomato juice. However, both these juices are rich in iron and the orange juice is a good source of calcium. Tomato juice is usually as well tolerated as orange juice and considerably less expensive. Depending upon the size of the child and his inherited characteristics, the weekly gain—after the initial loss in weight—should be from four to eight ounces for the first six months. A steady gain is much more important than any given amount. If the infant is fretful and does not gain in weight, his food is either insufficient or not being properly digested. In such case a chemical analysis of the mother's milk should be made to determine whether it is supplying the needs of the child. The quantity of milk taken by the child can be accurately determined by weighing him immediately before and directly after nursing. Supplementary feeding of a milk formula may be necessary. The exercise required in natural nursing tends to develop the child's dental arch more completely than does nursing from a rubber nipple.

The feeding-schedule is directed by doctor or nurse to meet the needs of the child and with consideration of the qualities of lactation of the mother. That most generally used for healthy infants is planned with feedings at four-hour intervals. This permits five feedings during each twenty-four hours, with a long period of eight hours through the night. Habits are established early in the infant's life. He learns to wake regularly at a given hour in the morning. In the hospital the first feeding of the day is usually given at six o'clock in the morning. Thus, by the time he is removed to his home, the baby is accustomed to waking at this hour. It would seem a very good plan to establish the waking habit of the newcomer at any hour that fits conveniently into the family schedule. However, the evening bed-time hour should be early, and the feeding schedule must be maintained.

It is important that the mother be mentally calm at the nursing-period. She should be comfortably established in a chair low enough to permit her feet to rest upon the floor, or she may be resting in a reclining position. The nipple should be washed before the feeding with sterile water, and after the feeding with a 2 per cent. solution of boric acid. The breasts may be alternated or both given at each feeding. The nursing-period may vary from ten to twenty minutes depending upon the size, vigour and digestive capacity of the infant and the abundance and quality of the secretion. Let the young child learn the business of taking nourishment as separate from the process of falling asleep. Feed him, then put him into his crib, and leave him to fall asleep naturally. He must not form the habit of going to sleep while nursing.

NOTE: The fruit juice may be omitted before the early morning feeding if the mother is caring for the child. Sleep for both is probably more necessary.

FEEDING-SCHEDULE FOR FIRST YEAR

To One Month

Upon the advice of the doctor in charge one teaspoonful of strained orange or tomato juice may be given one hour before each regular feeding. If the infant does not readily take the fruit juice, dilute it with an equal amount of boiled (warm) water.

Feed at 6 A.M.—10 A.M.—2 P.M.—6 P.M.—10 P.M.

Second Month

Increase fruit juice to one tablespoonful one hour before each feeding. Orange and tomato juice may be used before alternate feedings.

Continue same hours of feeding. Omit the 10 P.M. feeding as soon as the baby will sleep through from the six o'clock feeding.

Third Month

Use of fruit juice is absolutely necessary from this time on.

Continue same hours for feedings. Omit the 10 P.M. feeding from now on. Increase the quantity of fruit juice to two tablespoonfuls, or as much more as desired, given one hour before each feeding. Strained pineapple juice may be used now alternately with the orange or tomato juice. In warm weather offer the child cool boiled water two or three times a day. He may have up to one ounce at a time. If this is given from a teaspoon, a few drops at a time, it will help to train the child to take his milk from a cup later.

Fourth Month

Continue same feeding-schedule. Give as much unsweetened fruit juice as desired one hour before each feeding.

Fifth Month

Same as fourth month.

Sixth Month

Continue same feeding-schedule. One hour before the 10 A.M. and 6 P.M. feedings give as much unsweetened fruit juice as desired. At the 2 P.M. feeding give four tablespoonfuls of strained vegetable broth, or four tablespoonfuls of puréed bland vegetable such as carrot, green or yellow wax beans, green peas, beets and tops, asparagus or lettuce.

Seventh Month

Continue schedule of sixth month.

Eighth Month

Continue schedule for sixth and seventh months. At two o'clock feeding, a milk formula may be given from a cup with the vegetable feeding. (See formula given for eighth month under " Artificial Feeding.")

Ninth Month

Weaning may be advisable this month in the interest of both child and mother. Continue feeding-schedule as for the eighth month.

Tenth Month

Continue schedule as for ninth month. Child should be taking vegetable broth and fruit juice from cup, vegetable purée from a spoon. He is gradually becoming accustomed to these implements.

Eleventh Month

Weaning is usually completed by this month.

6 A.M. Feeding.
½ cup raw unsweetened fruit juice.
1 cup raw (certified) milk.

10 A.M. Feeding.
½ cup vegetable broth of puréed vegetables.
1 cup raw (certified) milk.

2 P.M. Feeding.
Same as 6 A.M. Feeding.

6 P.M. Feeding.
Same as 10 A.M. Feeding.

Twelfth Month

6 A.M. Feeding.
½ cup raw unsweetened fruit juice.
1 cup raw (certified) milk.

10 A.M. Feeding.
½ cup vegetable purée.
1 cup raw (certified) milk.

2 P.M. Feeding.
½ cup raw unsweetened fruit juice or puréed baked or steamed fruit, preferably apples or pears. (Sun-dried unsulphured fruits may be used in place of fresh fruit at times.) 1 cup raw (certified) milk.

6 P.M. Feeding.
½ cup vegetable broth.
1 cup raw (certified) milk.

WEANING

Usually the infant makes better progress if weaned by the ninth or tenth month. Gradual weaning, as suggested above, by the use of spoon and cup at part of the feedings is most satisfactory. Certain conditions may affect the time of weaning. During very warm weather or at a time when the child is not entirely well it might be inadvisable to change his food and habits. Some children do not digest either bovine or goat's milk satisfactorily; for these the period of breast-feeding may be prolonged as much as possible.

The mother may be more disturbed than her baby at the weaning-period. When breast-feeding is stopped, she should limit the fluid intake, keep her bowels open, and leave the breasts alone. Pumping or expelling the secretion results in the formation of more fluid.

In nursing mothers, the function of menstruation is resumed, usually, in about six months. It is not a cause for weaning the infant, if he remains normal. The child may show slight loss of weight at the time or a tendency to digestive disturbances. If these conditions are only temporary and not severe, the mother should not be alarmed. Acute illness of the mother, or pregnancy, are about the only reasons for discontinuance of breast-feeding.

ARTIFICIAL FEEDING

In artificial feeding, either cow's or goat's milk is generally used. Because of chemical differences such milk must be modified to approach as nearly as possible the composition of breast-milk at the different periods of lactation.

The schedule of feeding should be the same in artificial as in breast-feeding. The use of fruit juice and vegetable broth is absolutely essential from birth in systems of artificial feeding to supply needed vitamins, amino acids, and minerals. Follow " Feeding-schedule for First Year," substituting the correct formula for breast-feedings.

The formulæ given below will meet the changing needs of the developing child. If these do not agree with any particular infant, the doctor should be consulted before a change is made.

Sufficient food for the entire day should be prepared in the morning, placed in straight-sided sterilized bottles, each covered with a glass lid, placed in the refrigerator, and kept at a temperature of 40 degrees or 45 degrees. The food may be warmed to body temperature—just about 98 degrees Fahrenheit, by placing bottle in pan of cool water and warming gradually. Remove glass lid and adjust sterilized nipple. Since goat's milk is relatively hard to get, these formulæ are made with raw certified whole cow's milk which is more like breast-milk than the milk of other animals. Only water that has been boiled may be used. Sugar is added in the form of lactose or commercial sugar-of-milk obtainable at the drugstore. After each feeding rinse bottle and nipple with cold water, then immerse in a solution of borax or bicarbonate of soda until ready to wash with warm soapy water. Boil bottles in covered kettle. Sterilize nipples by immersing in 2 per cent. solution of boric acid until needed. Be careful to rinse away every trace of this solution before attaching nipple to bottle.

Formula for First Month

5 oz. milk.
10 oz. water.
Scant tablespoonful lactose at two weeks.
2 tablespoonfuls from two weeks to one month.
Sufficient for five feedings.

Formula for Second Month

7 oz. milk.
12 oz. water.
2 oz. thin cream.
2 tablespoonfuls lactose, increase to 3 tablespoonfuls.

Formula for Third Month

9 oz. milk.
13 oz. water.
2 oz. thin cream.
3 tablespoonfuls lactose, increase to 4 tablespoonfuls.
Sufficient for four feedings.

Formula for Fourth Month

12 oz. milk.
15 oz. water.
2 oz. thin cream.
4 tablespoonfuls lactose.
Sufficient for four feedings.

Formula for Fifth Month

15 oz. milk.
15 oz. water.
2 oz. thin cream.
4 tablespoonfuls lactose.
Sufficient for four feedings.

Formula for Sixth Month

19 oz. milk.
11 oz. water.
2 oz. thin cream.
4 tablespoonfuls lactose.
Sufficient for four feedings.

Formula for Seventh Month

22 oz. milk.
8 oz. water.
2 oz. thin cream.
3 tablespoonfuls lactose.
Sufficient for four feedings.

Formula for Eighth Month

25 oz. milk.
6 oz. water.
1 oz. thin cream.
7 teaspoonfuls lactose.
Sufficient for four feedings.

Formula for Ninth Month

28 oz. milk.
3 oz. water.
1 oz. thin cream.
3 teaspoonfuls lactose.
Sufficient for four feedings.

Tenth and Eleventh Months

Whole milk only, without modification. Four feedings of 8 oz. each. No infant should have more than one quart of milk daily. Give vegetables and fruits as noted in feeding-schedule for tenth and eleventh month (Natural Feeding-schedule).

CHAPTER VI

CARE OF INFANT DURING FIRST YEAR

CARE of a young child may be placed in the category of full-time employment, yet the prophylactic infant suspended in the sterile vacuum of a scientific schedule and attended by a completely antiseptic, thoroughly impersonal nurse may not thrive so well as the happy baby given the loving service of an intelligent mother. In infancy as well as in adult years, every human being has little idiosyncrasies of his own. These personal traits are factors in determination of individuality. When good they are to be encouraged. Those that are undesirable may be largely overcome if recognized early and corrective training started. During the first year of life the infant's body and brain develop rapidly; he needs a mother who understands the basic principles of nutrition and hygiene, both physical and mental. But busy mothers cannot give their entire time to each child, and consequently must plan their work, budget their time, and learn the easiest, most effective methods of accomplishing their duties.

First in importance in the daily care of the child is his bath. Bathing has two purposes—to cleanse the skin, conditioning it for its service as an organ of elimination, and to soothe irritated nerves and tired muscles. Until the umbilicus is entirely healed, sponge baths are given. But no mother should attempt the care of her child until at least a month after birth. By this time the navel will be completely healed and requires no special attention. The morning bath will best be given before the mid-morning feeding. Allow a half-hour for complete bath, including dressing. In warm weather an additional dip into a tub of tepid water before preparing the baby for bed in the evening will be conducive to quiet, peaceful sleep.

Bathroom temperature should be between 70 and 75 degrees. Avoid draughts during the bath to prevent sudden chilling. Use a bath-thermometer and always test the temperature of water before placing the child in it. Many a baby has been frightened and developed an aversion to bathing by being plumped into water too cold, too warm, or too deep. He should enjoy his bath, and he will if given sensible attention. To six weeks of age, baby's bath should register 98 to 100 degrees. At about six months, the temperature may be reduced gradually to 90 degrees. By the time he is a year old he will be enjoying a tub registering 75 to 80 degrees. Until the child can sit alone he must be firmly supported in his bath. After he is able to support himself (about six or seven months) teach him to expect a cold splash or shower over chest and back, just before being taken from the tub. Where there is no special bathroom and no stationary infant's tub, a portable baby's bath-tub of metal or composition may be placed on a table adjacent to his dressing-table and scales. Lay a heavy folded towel in the bottom of the tub before filling with water, this for the comfort and safety of baby. By ' filling ' is meant from about five inches of water for the infant, to as much as desired by the older child.

The complicated mystery of baby's bath can be solved by systematic order in preparation and arrangement of necessary supplies and clothing. The mother or nurse will always scrub her hands with warm water, soap, and brush before touching the baby or any of his belongings. A rack placed near the dressing-table will be found convenient. Garments should be arranged on the rack in the order in which they will be needed, allowing sufficient space between to prevent two or three pieces slipping off when only one is wanted. In addition to clothing, hang on the rack a soft towel for baby's face. Reserve one shelf in the nursery cabinet for the toilet tray, a noiseless composition tray of generous size holding straight-sided, clear glass jars with secure tops and plain labels. These jars will hold pure Castile soap, olive oil, best grade talcum, 2 per cent. solution of boric acid, sterile absorbent cotton, smooth, round tooth-picks. Assorted sizes of strong safety-pins, soft camel's hair brush, and a sterile gauze wash-cloth will be placed on the tray. A soft blanket and two towels (one of linen, the other a heavy type) should be laid across one end of the dressing-table which has previously been covered with its special pad. (See nursery furnishings.)

Everything being in readiness, the mother or nurse will don her large bath apron (made of cotton flannel with rubber back) and see that no pins, sharp buttons, or any ornaments of dress are present to scratch or hurt the child.

Place the baby on dressing-table and remove his clothing over the feet. Wrap blanket round him and wash his face and head, using sterile gauze wash-cloth covered with a lather of soap. Avoid getting any soap into the eyes. Rinse carefully, dry gently and quickly with soft face-towel from rack.

A 2 per cent. solution of boric acid is made by adding one teaspoonful powdered boric acid to one pint boiling water. See that all lumps are dissolved. Use at only tepid temperature.

Remember that baby's skin needs very little soap.

Now cleanse the eyes by dropping a little boric solution from a saturated absorbent cotton pad into the inner corner of each eye. No need to force the eyes open, the solution will find its way between the lids. Gently wipe away the solution, using a new, clean tuft of cotton for each eye.

The nostrils may be cleaned if necessary with small applicators made of bits of cotton wrapped securely on tooth-picks and dipped into olive oil. Do not introduce these farther than $\frac{1}{4}$ inch into the nostrils. The delicate membrane of nasal passages is easily injured.

The ears are extremely sensitive organs and must not be tampered with. They will be washed when the face is being washed, and must be dried carefully. Twisted sterile cotton may be used to wipe out the ear, but no hard substance may come near it. Any discharge or unusual condition should be reported to the physician at once.

The saliva is a cleansing agent. It is sufficient to keep baby's mouth in a sanitary condition. Never wash the infant's mouth except under doctor's orders.

After caring for the eyes and nose, test the bath-water for temperature again, adding more hot water if necessary, before placing baby in the tub. Now quickly go over the entire body (except head and face) with the wash-cloth covered with lather of soap. Firmly supporting the child on the left arm, lower him gently into the water, and rinse away every trace of soap. Two or three minutes in the water is enough. Time may be increased with age of the child. Lift the baby out of the tub and on to a heavy towel that is spread upon the dressing-table. Using the linen towel, pat the entire body dry. A small amount of talcum may be dusted into folds of skin and under the arms. Avoid introducing powder between the folds of the genital organ of the female child.

Special care must be taken of the genital organs to ensure absolute cleanliness. The male infant will have been examined by the physician at the hospital to ascertain whether circumcision is necessary. After the bath every day the foreskin must be drawn back sufficiently to expose the glans, and the parts cleansed with 2 per cent. boric-acid solution, then dried with sterile cotton. At least twice a day the labial folds of the female infant must be cleansed with boric solution. Any unusual condition such as a discharge, however slight, must be immediately brought to the attention of the physician.

Dress the child as quickly as consistent with careful handling. He should now be weighed, fed, and placed in his crib to sleep. It is not advisable to put the baby out of doors immediately after his bath in cold weather.

Care should always be exercised to keep the eyes of a child from exposure to direct sunlight. Dust and wind are likely to cause inflammation, and when possible the baby should be shielded from both. Any discharge, swelling, or redness about the eyes will call for examination by the physician.

When teeth begin to appear, they should be washed daily with sterile water and cotton. After the child is a year old he should have two soft small toothbrushes. Use alternately so that one may always be dry.

Development of scales (sometimes referred to as ' milk crust ') on the head will be prevented usually by daily washing as described. Should this condition be noticed, the head may be rubbed carefully with olive oil at night and washed in the usual way in the morning. This will promote the natural hair-growth as well. The hair of a new-born baby usually drops out during the first few weeks of life and is replaced by permanent growth. Use only a soft camel's hair brush to arrange the hair. Be careful in rubbing the head as the fontanel must not be pressed hard or rubbed roughly. This ' soft spot ' on baby's head is caused by the opening between sections of bone structure protecting the brain. It will disappear as the head assumes its permanent contour. In cases where the head has been forced out of shape during a difficult birth, the return to normality is possible through the fontanel adjustment. Beautiful head-contour may be encouraged by gentle pressure administered by the mother's hands several times a day during early infancy.

Any unhappy condition such as wide or flat nose, or outstanding ears can be corrected while the child is in infancy. Using the thumb and forefinger the mother should press the nose lightly into shape. A light-weight, close-fitting cap (preferably of silk net) will train the ears into proper position if used early and consistently. Be sure the ears are flat when baby is placed on his side. Normal children may develop prominent ears if care is not taken.

The infant's hand is unsightly when long nails are permitted. Finger nails must be kept short and smooth by careful cutting with a sharp nail-scissors.

Accurate weight-charts should be kept for every child. It takes only a minute to mark his weight on the chart every morning after his bath. After the initial loss in weight, which should be made up in a week or ten days, a healthy baby will gain four to eight ounces weekly during the first six months. From six months to one year of age the gain will probably be about four ounces each week. Size of the infant at birth, and consideration of inherited racial and family characteristics will be contributing factors in weight-increase. It is much more important that the gain be regular than that it be any certain amount. Show the weight-chart to the physician twice each month, if the child is entirely well and gaining consistently. Any condition less than normal will require professional examination of the weight-chart at least weekly. Study Chapter VII for detailed information on feeding the infant.

From the time lactation is established and as long as the infant is on a milk diet, the normal stool will be semi-solid and yellowish in colour. Any deviation should be reported to the physician. A healthy baby will have two or three bowel-movements daily. He will void urine frequently, usually about once every hour. Training of rectum and bladder should be begun soon after birth. Instances have been recorded of infants having been trained to complete control during the day, as early as three months of age. Regular habits can be established by giving the child opportunity for evacuation at unvarying times and regular intervals. Avoid the suppository habit. Should there be less than three bowel-movements in any twenty-four hour period, an enema is indicated. Half a cup to one cup of tepid water should be injected, using infant's enema equipment of soft rubber. The flow of water must be regulated carefully.

Regularity in sleeping-habits is altogether as important as regularity in other matters. For the first few weeks the baby will sleep about twenty hours out of every twenty-four. At six months he should sleep uninterruptedly from the six o'clock feeding in the evening until six in the morning and will require a long nap in the morning and a shorter sleep in the afternoon. From the beginning he must be taught to sleep in his own bed. After being fed and made comfortable, he should be put in his crib while awake, covered suitably, the light turned out, and left alone in his room. No healthy child used to kind treatment will ever think of being afraid in the dark on his own initiative. The word 'fear' or any of its derivatives or relations positively must never be used in the hearing of a young child. Likewise it is imperative that the mother or nurse remain calm and speak quietly no matter how great the stress or anxiety under which she labours. Fear is contagious, whether spoken or suggested by behaviour.

Beginning when he is about two weeks old, the child should be taken out of doors for a short period each day. The time will be increased gradually until he is spending most of his day in the open air. When the temperature falls below freezing, a sunny protected corner will have to be selected for baby's carriage. Such a spot will frequently be as much as 40 degrees warmer than an exposed place in very cold weather.

Direct sunlight is essential to the full development and proper growth of the child. Sun-baths should be started at three or four weeks of age. If the weather is unfavourable or the season cold, irradiation by sun-lamps will be substituted. A substance known as ergosterol is present in the tissue under the skin. Upon contact with direct sun-rays or rays from proper sun-lamps, this substance generates the important Vitamin D. The growth and development of the entire body and particularly of the osseous structure is influenced by this vitamin, sometimes spoken of as a form of radiant energy. Duration of exposure will be estimated with regard to climatic conditions, the age and physical condition of the child, and amount of pigment naturally contained in his skin.

Any mother who is not informed on this subject should by all means secure a reliable source of information and learn the important part played by the vitamins in the development of the body and the maintenance of health. The physician in charge will determine the time and character of exposure for each child.

At birth the infant's first teeth are completely formed and partially hardened. The second set is in the process of formation. Teething is a natural process of development, beginning usually about the sixth or seventh month. Previous to the appearance of the teeth the flow of saliva begins. This is evidence of the development of the salivary glands and not a distress signal of teeth trying to force their way through the gums. Teething-troubles are sometimes imaginary: signs of illness, such as high temperature and restlessness, frequently are interpreted as relating to teeth when there is something else causing the trouble.

There are twenty temporary teeth, ten in each jaw. At one year of age the baby usually has six teeth appearing in this order: lower central incisors (2); upper central incisors (2); and upper lateral incisors (2). Should the child be fretful, bite at his fingers, or refuse food temporarily during the teething period, let him have plenty of cool water to drink. When the gums are swollen or feverish they may be rubbed lightly with a small piece of ice wrapped in sterile gauze. There may be a variation from average in time of beginning of dentition and also in the order of appearance of teeth. Should the process be delayed beyond the ninth month, the child should be examined by his physician. The diet is probably at fault.

Regular care of the temporary teeth is conducive to a perfect permanent set. A dentist should examine the child's teeth three or four times a year. Cavities that appear must be filled and the diet checked to determine the intake of proper and necessary foods. Extraction of the first teeth is likely to cause retardation of gum and jaw development in such a way that crooked second teeth may result. Gums should be firm in texture, a clear pink in colour, and should hold the teeth firmly.

A nurse having served in India made the statement that the human infant is the toughest of all living beings. True, he is human and not likely to disintegrate at the least error in position, as many adults seem to fear. But his bones are flexible and his flesh tender. Painful muscles are often the price paid by the baby for too much or careless handling. Nevertheless he should not be left too long in one position. That is equally tiring. Give the child a drink of cool water frequently. Many babies cry in vain for this attention.

Every child is born with two sets of tendencies: one to follow impulses from within; the other to imitate the activity-patterns of those about him. Suggestion will guide the individual impulse since the motive of imitation is a great regulator of behaviour. Not only the actions but also the mental attitude may be controlled by suggestion. The baby should be taught happiness as he is taught cleanliness. When awake, he should sometimes be taken up by his mother or other adult and held in a position different from the one he assumes in his crib. Let him learn that attention will be forthcoming when he smiles rather than when he resorts to crying. Whether he is a cheerful cherub or a howling calamity depends entirely upon training.

The only exception that could truthfully be made to this statement is in the case of illness. If, as is generally accepted as axiomatic truth, the first seven years determine the child's future life, it is equally a fact that the first few months are the most important. Habits are formed through repetition of actions. The baby begins to form habits immediately after birth. That is why regularity in his care is essential.

The baby's affection for parents and children is natural. As soon as the child comprehends the desire to please, he may be taught obedience. Punishment has no place in the training of a baby, indeed it is doubted by some authorities whether punishment serves any good purpose with children of any age. The baby who has before him an example of cheerfulness and patience is not likely to develop the tendency to cry for what he wants. If he knows that immediately after his bath he will be fed, even when hungry he can be kept in a pleasant mood during his dressing by the tactful mother. Never, though, must he be permitted to learn that anyone is pandering to his mood. The observant mother will be able to guide the child's action subtly through anticipation of his behaviour.

Self-control is taught by example. The child's desire to scream or throw playthings when displeased is natural. However, before he is a year old he will be able to understand that such actions will not be tolerated. Every adult knows that self-control is a lifelong struggle, even though some are reluctant to admit it.

The healthy baby exercises almost constantly during his waking hours. Kicking, rolling, and creeping are his methods of play. Crib sheets and carriage blankets must be arranged to allow free movement of feet and hands. Once or twice each day the small baby should be placed on a large bed and allowed to roll about or kick as much as he likes. For quiet play he may have rubber or celluloid dolls or animals, provided they do not contain whistles or any metal parts that would be removed and swallowed. Painted objects are not permissible because the baby will want to devour the beautiful colours. A small silver bell has amused the babies in one family for several generations.

After the child has reached the age of nine months, he should be given opportunities for self-directed play. A cardboard box containing spools, small celluloid toys, an unbreakable composition cup, and other similar articles may be placed at his disposal. Curiosity will guide him in examining the contents of the box. This trait (curiosity) is the first urge to reason and thence to education, and is to be encouraged. To forbid him to experiment or to reprimand him for following his natural instinct to search for knowledge is unjust and may inhibit his desire for knowledge as he grows older.

Baby's clothes will be made upon simple patterns, of soft, washable materials. At all times clothing must be adapted to the weather, no matter how variable it may be. Too many children are stifled under layers and layers of clothes. The baby's hands and feet should be warm always, but it is inhuman to dress him so warmly that he perspires constantly. Any healthy child can become accustomed to wearing only the scantiest of garments if he is carefully trained from infancy. It is not practicable for most people to follow the doctrine of the nudist, but it will be possible to refrain from hampering the child with unnecessary garments. Feeble infants and premature babies require special care in the matter of clothes, as in everything else. No one but the doctor in charge should be consulted in such cases.

Abdominal bands are the despair of many a young mother. She believes they must be tight, and in her zeal to follow that belief she squeezes the child into the band as if in a vice, until the abdomen is pressed hard and all abdominal organs are crowded out of shape, being thus deterred from developing properly. Kicking and other natural exercises will promote all muscular development sufficiently. During the period when there must be umbilical dressings, the band is used to hold these in place. Such a band is 6 inches wide and about 20 inches long. Edges should be 'pinked' or notched rather than hemmed. Material is usually flannel—all wool, or wool mixed with silk or cotton. It will be pinned securely in place (after special navel dressing is put on the child) always at one side of the front. When the umbilical dressing is no longer needed, the only purpose of a band is to provide a pinning-surface for adjusting the diaper. A knitted band with shoulder-straps should now replace the former type.

Diapers are most satisfactorily made of cotton birds-eye cloth. The nurse will demonstrate how these should be folded and pinned. Avoid any unnecessary bulk between the child's legs. This tends to cause thigh-deformities and to prevent straightening of the legs which are usually slightly bowed at birth due to position during prenatal period. Too tight pinning at waist or knee will cause discomfort and hamper free movement of the legs. Sterile tissue diaper linings are a great convenience and quite safe to use.

Wet or soiled clothing should be removed and dry garments adjusted at once. The child must never become accustomed to wet clothes, for beside the physical discomfort, with its attendant danger of irritation, it may hinder him in acquiring bladder-control.

After cleansing a soiled diaper by flushing, place it in cold water in a covered enamelled pail where wet diapers will be deposited as soon as removed from the child. The pail must be emptied and cleaned with boiling water and borax once or twice a day. These garments will be washed in hot water with plenty of mild white soap, rinsed several times, and then boiled. All baby's clothing will be washed with the same mild soap, thoroughly rinsed, and hung out of doors in the sun to dry whenever possible. Avoid rubber bloomers except on special occasions for short periods of time. They cause excessive perspiration and irritation.

Very young babies will wear a shirt of cotton, wool, silk, or some mixture of these materials. It should fasten with ties of tape rather than by means of buttons. Petticoats of soft materials may be needed in winter. These should be of the type that tie on shoulders for the comfort of the baby and convenience in dressing. If the child keeps sufficiently warm do not add to his encumbrance by putting stockings on him as long as he is too young to get about. Dresses of thin cotton or silk should be made on a kimono pattern, with flat casing of same material holding ribbon to draw the neck and sleeve hems into comfortable adjustment.

As soon as the baby tries to stand, let him be fitted with shoes that will support the ankle and give his toes plenty of room. The heel must be close-fitting, while the length of the shoes should be about one-half inch longer than the foot. Soles made of firm, rough-grain leather will prevent many falls and much skidding. Proper shoes will encourage the child to walk.

Plenty of light-weight soft wool sweaters will be convenient for cool-weather outdoor wear. In winter the very small baby will be comfortable in a zip-fastened bag, but as soon as he begins to notice things about him, he will want to move his arms and probably kick his feet as well. Then he must have a suit with sweater and leggings, mittens and cap.

When regular personal habits have been acquired the child will be promoted to buttoned-on underwear. Permit no elastic waistbands. He will then wear ankle-length socks and sturdy shoes. What a proud child he will be when he first dons a romper suit instead of the dress that would be an impediment in walking.

Night-gowns of soft cotton or silk material will be needed for the small baby in winter. These may be discarded after the first year. Bed-clothing must be light in weight. In summer a cotton sheet may be needed in some climates to shield the child from sudden changes in temperature during the night. Soft blankets, with perhaps a comforter in very cold climates, may be used for the crib during the winter. The most important consideration is the child's comfort. Keep him warm but not bundled up.

Baby's carriage is his part-time bed and chair. It should be selected carefully for convenient height from the floor, and must be large enough to allow him to lie at full length when dressed in winter clothing. The back and top will have to be adjustable for baby's comfort and protection. Strong flexible springs are essential for easy riding. When the child is able to sit up in the carriage, place a folded blanket on the seat so that his feet may be lower than his hips. The safety-strap must be strong and have a fastener (clasp) which the small child cannot open.

CHAPTER VII

FOOD

ESSENTIAL FOOD-CONSTITUENTS IN INFANCY AND CHILDHOOD

THE most rapid rate of growth manifested during the human lifetime takes place during the first year. In proportion to its body weight an infant requires about twice as much food as an adult: factors determining individual needs are requisite amounts for body maintenance and for growth. To show the same gain, a quiet contented baby will need less food than a fretful child that is constantly kicking and crying.

Nature has plainly indicated that milk is the ideal food for babies. Breast-milk supplies more nourishment per given quantity than a formula made from cow's milk, because of the difference in chemical composition. Certain amino acids seem to be deficient in casein, the protein of cow's milk.

Elements essential for growth-replacement include proteins, minerals, vitamins, and water. These are the constituents from which new tissue is formed.

Nitrogen in the form of protein is the material from which body cells are built. Calcium (one of the minerals) is the binding material. Here, as elsewhere, the vitamins are important, for the presence of Vitamin D in the body controls the availability of calcium. Water is needed to keep the requisite elements in proper solution. The carbohydrates and fats provide energy and the body fat that accounts for some weight increase. Ninety per cent. (approximately) of the food taken by an infant is available for use in the body, the remaining 10 per cent. being lost in excretions. As much as 50 per cent. of the protein in an infant's diet may be utilized in growth. For this reason a relatively high protein consumption is usually recommended. The total food-requirement for maintenance continually increases from birth to adolescence.

Protein is required for formation of new tissue and replacement of waste. This element is retained in the infant body in the form of nitrogen. When an insufficient quantity of carbohydrates is given in the diet, protein may be broken down and transformed into a fatty substance to be used in supplying energy. Milk provides protein in its most readily available form for use in the baby's system. Breast-milk contains lactalbumin, the perfect form of protein for the human infant. Cow's milk, containing casein, is readily digested by some babies, but owing to large coagulation, presents difficulties in other cases. There is another problem presented in feeding cow's milk, and that is its high protein content, which is nearly twice as great as the protein content of breast-milk.

PROTEIN—THE BODY-BUILDING ELEMENT

Protein is a food-element necessary to the physical well-being of every individual, from infancy to old age. It is present in all forms of plant and animal life; thus all natural foods supply some protein, the amount and kind differing with the source.

The proteins of grains are found in the outer covering and the germ. Milk is the best source of protein for the child, because it furnishes so many other dietary essentials. Cottage cheese, being comparatively easy of digestion, is the first of these to be used; later, nuts, meats, and fish are included. Gelatine is a form of protein and may be used in desserts and other foods for children if the same rules are followed in serving which apply to all proteins: *i.e.*, they may be combined with acid fruits, raisins and raisin syrup, vegetables, and fats.

The use of more than one protein at a time is not recommended: it is especially important to avoid serving milk at any meal that includes any concentrated protein because of different digestive requirements.

Protein was once thought to be the chief essential of body structure, its very name signifying ‘of first place.’ Now it is known that much of the value formerly attributed to this element lies in the minerals and vitamins included in the diet.

Protein Requirements

The function of protein in the body is to build new cells and tissue, and to replace worn-out cells with new material, in this way contributing to the maintenance of good muscular structure. The faster a child grows the more protein is needed by his body: the protein requirement is in direct relation to the rate of growth.

The rate of growth decreases with age—from a 200 per cent. increase in weight during the first year of life it becomes progressively less until the individual reaches his full growth, which is usually accomplished by the twentieth year. The one exception to this rule is the period of accelerated growth during adolescence—from the tenth or twelfth to the fifteenth or sixteenth year.

As the rate of growth decreases, the maintenance or replacement requirement increases, due to the increase in body weight. Normally these processes so balance each other that the protein requirement remains practically the same during childhood and in the mature years.

It is true that the body can to some extent adjust itself to varying amounts of protein intake. However, an excess of this type of food places extra work and strain on the kidneys and digestive tract, hampering the function of the intestines and interfering with elimination, which results in putrefaction in the colon and absorption of waste matter. While the child is in the formative and receptive years teach him to take only sufficient protein and to eat it in combination with those foods which are compatible with it. Habits learned in childhood persist throughout life.

Sufficient protein will be assured in the child's diet if he is served one protein meal a day. Remember that in milk and all the other natural foods he is getting some protein. When the diet is sensibly balanced and includes the other elements in correct proportion, there will be no danger of a protein deficiency. Babies under eighteen months of age are given a milk formula at regular hours; the ingredients of the formula and quantity being adjusted to the child's requirements based on his progress as shown by increase in weight and vitality.

Milk differs from the other protein foods in that it contains only 3·3 per cent. of protein, supplying this element in dilute form. Milk is the food most easily convertible into body proteins.

Where there is difficulty in digesting sweet milk, taking acid fruits or their juices with it frequently solves the problem by facilitating digestion. Clabbered milk or the cultured milks are relished by many children who are unable to take sweet milk. When combined with an equal amount of orange juice it makes a palatable drink. Sweet milk may be used in soups, custards, junket, sherbets, and fruit drinks for all children.

Protein Recipes for Children's Diet

MILK SOUP

Equal parts whole raw milk and purée of cooked vegetable.

Heat milk to body temperature, add to hot vegetable purée. Beat with rotary beater for one minute to improve texture.

RAISIN CUSTARD (INDIVIDUAL)

2 tablespoonfuls chopped raisins.
6 tablespoonfuls milk.
1 egg-yolk.

Add raisins to milk and stir until evenly distributed, add beaten egg-yolk. Poach in moderate oven. To cook on surface burner, set the custard cup in the top of double boiler surrounded by boiling water, cook over boiling water until firm.

VEGETABLE CUSTARD

Follow directions for raisin custard, substituting grated carrot or other root vegetable for the raisins.

JUNIOR COTTAGE SALAD

1 oz. cottage cheese.
½ cup sliced celery.

Place celery on crisp lettuce. Sprinkle with olive oil if desired. Form balls of cottage cheese, place on celery. Dust with paprika. Diced apple or any shredded vegetable may be substituted for celery.

(Individual serving.)

ALMONDS

Grated almonds may be added to any green leafy salad. One ounce will supply sufficient concentrated protein for daily need.

LIVER AND VEGETABLES

(Will serve three.)

1 cup diced raw calf-liver.
3 slices fat bacon.
1 cup shredded carrot.
1 cup sliced raw tomato.
¼ cup sliced onion.

Cook bacon in heavy pan over slow heat until crisp, remove from pan. Pour off any fat in excess of 2 tablespoonfuls. Brown liver lightly in pan, add vegetables. Cook 5 minutes over quick heat. Place in hot oven for 10 minutes. Serve bacon broken into small pieces over top to garnish.

Fat is used in the body as fuel to furnish heat and energy. Any excess is stored in the tissues to be used as reserve fuel, acting at the same time as a conservator of body heat. Presence of fat in the body assists in resistance to infection and serves as a carrier of the fat-soluble vitamins. Abundance of fat in food determines the absorption of calcium from calcium intake. While both breast-milk and cow's milk contain about 3 to 4 per cent. of fat that may be absorbed in the infant's body in about the same proportion, there is a great difference in the digestibility of the two. In fact, disturbances of digestion are more often due to fat than to any other element. Digestive processes may be delayed by excessive amounts of fat in the milk, with the result that the ultimate effect is constipating rather than laxative as usually supposed. Tolerance to fat is an index to the general well-being of an infant. Fat is present in the diet of older children in the form of butter, cream, whole milk, vegetable oils, and meat fat.

Carbohydrates are a valuable source of body fuel and are essential to the development and well-being of the baby. However, starch has no legitimate place in infant-feeding. All carbohydrates in breast-milk and cow's milk are in the soluble form of lactose, popularly known as milk sugar. The proportion of lactose in breast-milk is more than twice that of cow's milk. This ideal form of sugar has a slightly laxative effect and is usually entirely assimilated by a healthy breast-fed baby.

Older children will need starch as well as sugar to supply their heat and energy requirements.

CARBOHYDRATES—ENERGY-PRODUCING FOODS

The boundless energy typical of childhood is the result of a good constitution supplied with plenty of energy-producing foods and provided with the opportunity for some contact with direct sunshine. While the sun is the source of all available energy, only a small portion of it is acquired by the human body through exposure to its rays. Utilization of the sun's energy is mainly by means of plant life.

Sunshine promotes a chemical reaction known as photo-synthesis, in which the green leaves of the plant develop organic carbohydrates—natural sugars and starches—from the organic elements of the air and water. These sugars and starches represent a portion of the sun's energy and upon digestion and assimilation, transfer to the human body the energy temporarily locked up in them. Formation of starches in vegetables is a development from a form of sugar in the early stages; while the sugars of fruits are produced by ripening from a starchy composition. By feeding the carbohydrate foods to farm animals that are used for milk and meat purposes another means is employed for transferring energy to the human body.

Energy acquired by the body through these three methods—direct exposure to sunlight, carbohydrate foods, or animal foods—is used in one of three ways:

To produce heat generated constantly in life;
To produce energy which is expended constantly;
To produce body fat, when an excess is taken over requirements for heat and energy.

In childhood the greater expenditure is for energy, this never ceases, but varies greatly in direct proportion to the degree of activity. The quiet, contented infant will grow plump on the same amount of food given a fretful baby who uses up energy in crying and tossing about. Every movement of the body costs something in energy. Involuntary body processes such as heart action, breathing, muscular tension—even growing—require the expenditure of energy. Age, size, degree of activity are important factors in determining the amount needed; while environment, bodily constitution, surface area, as compared to weight and gland-function, are secondary considerations. It can be readily seen why no definite amount of food can be set as the ideal for any age. Every body being in some respect different from every other, each will have its own requirements. Unless there is a desire for amounts that seem excessive, the child's appetite is the best guide to the quantity he eats. See that he learns to like the natural sweets and the whole-grain cereals and breads; and that he becomes accustomed to taking these in menus which include vegetables and fats—the two types of foodstuffs that can be satisfactorily digested with carbohydrates.

It is the carbohydrate foods that are denatured and devitalized by manufacturing processes until they have lost everything but their fuel value. In eating white sugar, less danger lies in what is put into the body than in what is drawn out of it in the digestive process. For carbon (the only element left in white sugar) has a remarkable affinity for calcium and will unite with this element even when the calcium must be drawn from the body structure itself. Dental caries are frequently caused by the excessive use of white sugar in the diet.

The whole cereals (including brown rice) and their refined products—whole-grain breads, whole-wheat macaroni, etc., potatoes (both sweet and white), pumpkin, Jerusalem artichokes, large green peas, lima beans, are the principal starches. Raw, brown, and maple sugars, and syrup made from these, honey, the sweet fruits (dates, figs, and bananas) are the best concentrated sugars. Raisins are in a class by themselves, because they contain sugar in a form that requires no preparation for absorption into the system; therefore they may be served with any type of food. All of these foods contribute minerals and vitamins in addition to energy value to the body.

The digestion of starches requires a rather long time. Never give the child starchy foods between meals, for he cannot digest them quickly enough for the stomach to empty itself before the next meal time. Carbohydrate foods on being digested are absorbed into the blood in the form of a simple sugar. In the case of starches, the digestive process begins in the mouth where the ptyalin of the saliva splits the starch into a less complex chemical form. Herein lies the importance of chewing this type of food, for the digestion cannot go on unless the first step has been completed. In addition to their nutritional aspect the unrefined cereals have the important value of inducing the very vital process of chewing.

By the time that all of the child's teeth are in place, the saliva contains enough of the important enzyme

—ptyalin—to contribute its share in the digestion of the starches, and not before. For this reason, concentrated starches are withheld until such a time as a complete set of temporary teeth (first or baby teeth) have appeared. This is usually at about two and a half years of age.

Suggestions for Carbohydrate Foods for Children

Bread given to children should be made of whole-grain flour and not less than two days old. Slicing thinly and toasting in the oven until crisp will promote chewing, which means better digestion.

Baking or steaming potatoes with the skin on conserves the mineral and vitamin content.

NURSERY SPAGHETTI

1 qt. boiled whole-wheat spaghetti. Thin cream to moisten (about ½ cup).
½ teaspoonful onion juice.
1 tablespoonful minced parsley.

Place all ingredients in shallow baking-dish. Sprinkle with grated whole-wheat breadcrumbs. Bake in moderate oven until crumbs are brown.

SWEET CEREAL

Add ¼ cup of chopped dates or other sweet fruit to each cup of cooked cereal just before serving.

DESSERTS

Steamed dates, figs, raisins, baked bananas, and pure maple sugar are good desserts for children.

Custards may be made with thin cream and egg-yolks, and sweetened with one of the natural sugars or sweet fruits in the following proportions:

(Individual serving.)
6 tablespoonfuls cream.
2 tablespoonfuls sweetening.
1 egg-yolk, beaten.
Poach until firm.

Mineral salts play a highly important rôle in body building and maintenance. These 'building-stones' control the nitrogen retention and regulate the water-content of the body. Certain minerals (iron particularly in infants) control blood formation. Calcium and phosphorus regulate bone development.

The child furnished with a dietary that supplies sufficient protein for growth and maintenance and adequate carbohydrates and fats to meet fuel and energy needs may still remain thin, petulant, and frail—a prey to every disease-germ that comes his way. Such a child lacks the essential mineral salts that should be abundant in his food. A healthy colour, clear skin, strong sound teeth, straight bones, vital personality traits, and resistance to disease are the result of adequate mineral intake.

There are sixteen minerals known to be necessary to health. Some are present in the body in measurable amounts, while others appear in minute quantities, yet have a significant relation to bodily function. Taken altogether the mineral elements make up only 5 per cent. of the body weight; but their importance to health cannot be overestimated. There is a striking similarity between the mineral constituents of the earth's crust and those found in the human body. However, the minerals as mined from the earth are in the form known as inorganic and cannot be used to replace body minerals until they are transmuted into the organic form by means of plant life. Just as the living plant transforms the energy of the sun into carbohydrates which furnish heat and energy when taken into the body, in much the same way it absorbs inorganic minerals and through chemical processes changes them into organic compounds suitable for human nutrition.

All body substances are continuously undergoing change. Cells are built, function for a time, disintegrate, and are replaced by new cells. Thus there is a perpetual change in body structure. The mineral elements of the food are necessary to the healthy normal structure of bones, soft tissues, and also body fluids. As constituents of bones and teeth they give hardness and correct form. As elements of the soft tissues (muscles, etc.), they impart elasticity as well as firmness. In soluble form, as ingredients of the blood and other body fluids, they keep these in correct chemical balance and to proper consistency. They have certain special purposes to fill, such as regulating heart action, forming red blood corpuscles and favouring coagulation of the blood when required.

Some minerals are used up in the body faster than others. Equilibrium must be maintained by supplying necessary amounts regularly in the food so as to keep the concentrations in right proportions, for any considerable departure from the normal must result in poor function and—when the deficiency is prolonged—eventually in death.

Foods popularly known as 'protective,' *i.e.*, fruits, vegetables, and milk, are the best sources of mineral elements. It will be noted that these are alkaline-forming and neutral foods. To these we must add egg-yolk, for it is a valuable source of minerals. Nature furnishes these elements in composite forms, so that an article of diet containing one always brings others. Some of the minerals have a particular affinity for others—as magnesium for calcium, phosphorus for calcium, etc. It has been determined that when there is an adequate supply of calcium, phosphorus, iron, and iodine, all other mineral elements will be present in required amounts. Since these elements are so essential to growth and health and can be stored in the body to some extent, it is advisable to supply more than the minimum requirement as determined by feeding experiments. An interesting fact with relation to minerals is that the alkaline elements seem to be more quickly destroyed in cooking than the acid-forming elements. This is probably due to the fact that the alkaline elements appear in more readily soluble forms. A relatively large amount of mineral-bearing foods should therefore be taken in the natural form—raw. Milk is included in this group, but when pasteurized it loses valuable properties.

CALCIUM

Although the mature body contains more calcium than any other mineral element, the human infant is always born calcium-poor. This is Nature's method of protecting both mother and child at delivery—keeping the baby's bones soft and flexible. To make up this deficiency, milk is provided as food for the infant. Milk is the best source of calcium, so it is possible to build firm bones and good teeth by following natural feeding-methods. The actual amount as well as the proportion of calcium must be increased as the child grows. During the period of growth, through adolescence, one gram of calcium daily is considered sufficient for all needs. This amount can be supplied by including one quart of raw certified milk in the diet. However, part of the calcium can be provided in the form of vegetables and fruits. Good sources are—almonds, cottage cheese, collards, egg-yolk, figs, raisins, all green leafy vegetables, citrus fruits, and molasses. While calcium plays an important part in the chemistry of the entire body, 99 per cent. is contained in bones and teeth. Lack of sufficient calcium results in stunted growth, abnormal heart conditions, rickets or malformation of bones, and soft teeth.

PHOSPHORUS

Two-thirds of the phosphorus in the body is found in the teeth and bones, where it exists in combination with calcium. This element is a powerful stimulant in development and growth of new cells and tissues; its relation to sulphur which is a growth regulator is interesting and important in nutrition. Phosphorus is essential to healthy condition of eyes, nerves, and brain. It is necessary to proper respiration. It is found in egg-yolk, whole wheat, halibut, lamb, almonds, liver, lean beef, steel-cut oats, pecans, cashew nuts, cottage cheese, citrus fruits, asparagus, cauliflower, tomatoes. About one gram daily is sufficient for adults, but in growth more is needed—1½ grams is a sufficient amount. This will be supplied by the quart of milk that provides the calcium requirement. The use of an abundance of fruit and vegetables is desirable, but these should be taken in addition to the milk which is the source of the minimum calcium and phosphorus requirement.

IRON

Iron is essential to body structure and nutrition. About two-thirds of the iron in the body is contained in the blood, where in the form of hæmoglobin (red colouring-matter) it serves as a carrier of oxygen. In contrast to the calcium deficiency of the infant, it is interesting to note how Nature has provided for the lack of iron that is characteristic of milk—the new baby's sole article of diet in many cases. At birth a considerable amount (about 10 grains) is stored in the liver—enough to supply normal needs for a period of several months. Metabolism—the process of transmutation of food into body structure—is dependent upon a liberal supply of oxygen. Because of the fundamental nature of the uses of iron, it has the very closest relation to problems of nutrition. This element being very active in the body, probably needs to be replaced more frequently than most others. Daily adult requirement is set at 15 milligrams; for children the same amount is probably sufficient. As the most important sources of food-iron are fruits, vegetables, and egg-yolks, the necessity for a generous supply of these foods must be emphasized. Green, leafy vegetables, fresh green peas, parsley, salsify (vegetable oyster), and lima beans are good sources of food-iron. Deficiency of this element causes poor colour, respiratory difficulties, lack of stamina, and, if long continued, results in anæmia.

IODINE

Iodine is essential to gland function and body metabolism. It is constantly needed but in small amounts, about one-hundredth part as much as the iron requirement. It is necessary to physical growth and mental development. Lack of iodine is reflected in mental incapacity—great deficiency resulting in idiocy. It is especially needed at the period of adolescence for the development of the reproductive organs, particularly by the female. Being a prophylactic agent, the presence of iodine is a defence against disease germs and keeps hair, skin, and nails in good condition. Good sources are lettuce, onions, garlic, pineapple, spinach, all salt-water plants, all sea-food. Non-starchy vegetables contain some iodine.

It is obviously impossible for parents to work out exact amounts of minerals contained in foods, but if the dietary includes generous amounts of fresh fruits and leafy vegetables, raw certified milk (one quart preferably, but not less than one pint daily) and egg-yolk, there need be no fear of a mineral deficiency.

Vitamins rank among the most important of the links in the chain of adequate nutrition. All natural foods show a vitamin content. Their duties are to assist first of all in functioning of the body organs and processes, and secondly in metabolism, which is necessary to regulate internal gland secretions and appetite. Seven vitamins are now well known, and it is believed that more will be identified soon. Those now classified have been named in true alphabetical order: A, B, C, D, E, F, and G. The second, B, is called the ‘ B complex ’ and really is the ancestor of F and G which are sometimes designated as B_1 and B_2. Each vitamin has specific duties to perform: none can replace any other. To make a general statement, it may be said that these essentials in nutrition provide the cells of the body with power to do their work.

Milk contains all of the known vitamins to some extent.

Vitamin A is a fat-soluble vitamin essential to growth, body maintenance, and resistance to disease, particularly of the eyes and respiratory tract. It is called the ‘ anti-infective ’ vitamin and can be stored in the body to an important extent. It is found in abundance in cream, milk, butter, all green leafy vegetables, yellow pigmented vegetables that contain carotene, and internal glandular organs such as kidney and liver. It is thermo-stable at relatively high temperatures, and less susceptible to deterioration by oxidation than was formerly believed.

Vitamin B is a water-soluble vitamin known as ‘ anti-neuritic.’ Lack of it affects nerves first, causing irritability and restlessness. This is found to some extent in all fresh plant food, and is present in abundance in yeast, whole grains (particularly germ), egg-yolks, citrus fruits, bananas, pineapple, raw asparagus, cabbage and all its relatives, carrots, lettuce, potato, spinach, tomato, milk, oysters, nuts, and cream. This vitamin is relatively stable to heat in acid solution and more readily destroyed in alkaline solution. It was once called the ‘ growth-promoting ’ vitamin but is now known to be necessary for adequate nutrition at all ages. However, it is particularly necessary to children for the reason that Vitamin B is known to have a direct effect upon the thymus gland which is the manufacturer of the lymph glands that protect human beings, particularly children, against infection.

Vitamin C is the anti-scorbutic vitamin. It is water-soluble and thermolabile and cannot be stored in the body to any great extent. Its use in sufficient quantities will prevent scurvy. This vitamin is essential for growth, sound teeth, and proper metabolism of bones. Lack of it will result in spongy gums, unable to hold teeth firmly. This vitamin is found in fruits (especially citrus variety), tomatoes and other vegetables, sprouted grains, and raw milk. Sufficienti Vitamin C is a protection against the infection usually spoken of as a ' cold.'

Vitamin D is the sunshine vitamin known as anti-rachitic, because its presence prevents rickets and other faults of bone structure and also tooth decay. It is fat-soluble, thermo-stable and can be stored in the body. It is developed in the human body by direct exposure to sunshine and is found in milk, egg-yolk, some fish, and internal glandular organs. Plant life is generally devoid of or deficient in Vitamin D.

Vitamin E is the fat-soluble anti-sterility vitamin. It is not essential before adolescence, since it affects reproduction.

Vitamin F, a subdivision of the original anti-neuritic Vitamin B, is sometimes called B_1. It is water-soluble and cannot be stored to any extent in the body. This vitamin is essential to normal growth of children, maintenance of appetite, and regulation of digestion. It is found in yeast, milk, whole grains, and various fruits and vegetables.

Vitamin G is the anti-pellagric, water-soluble vitamin. It affects condition of the skin, hair, and nails. It is essential to the growth of children. It is found in largest amounts in yeast, lean meat, milk, egg-yolk, and glandular organs.

Of the seven vitamins, six are fundamental in the development and growth of children. It behoves the mother to see that these essential substances are included in her children's diet.

Water acts as a solvent and assists in carrying food-material to the cells and eliminating waste products. Lack of water is felt more quickly than deficiency of any other food-constituent. A diet too high in sugar-content may result in water-logging of tissues due to excessive drinking. This condition interferes with digestion, and is sometimes the cause of excessively rapid loss in weight. The food of infants contains from 80 per cent. to 90 per cent. of water. This high water-content prevents formation of large curds of milk in the stomach. Older children will receive part of the necessary water in fruits, vegetables, and soups.

Every child, in order to assure proper development, must have a full share of all the essential food-constituents discussed above. If properly trained from infancy practically all children will like all of the natural foods. There are so many varieties of these that it is unnecessary to force any child to eat the one food to which he has an aversion.

THE SCHOOL LUNCH

Now that even the two or three-year-old is off to nursery school, not the least of the mother's daily problems is that of the children's lunch. Where the various schools are so situated in relation to the home that all of the children can get home at the noon period, the problem is simplified, for adequate, compatible menus suitable for children of any age can easily be planned. Include in these menus foods that are easily digested—crisp salads, good soups, well cooked vegetables, desserts that are not over-rich. Two or three courses are as many as may be permitted. Serve a vegetable platter followed by a large fruit salad and milk, or if three courses are desired, soup, a main course salad, and dessert.

Some adjustments will have to be made for the nursery-school child at times. Economy of time must always be considered. Let the first course be placed on the table while the children make themselves presentable, then the following courses should be served promptly. Keep in mind the fact that the lunch menus must be planned in relation to the remaining meals that will be served each day.

SPECIMEN LUNCH MENUS FOR SCHOOL CHILDREN

(*Alkaline*)

Fruit salad
(Cream dressing)
Individual spinach rings
with diced beets
Steamed celery
Junket or milk

NOTE—The two-year-old will have one-half cup sieved baked apple in place of the fruit salad.

(*Carbohydrate*) *Platter Lunch*

Ripe tomato on lettuce
(Dress with a few drops olive oil)
Steamed brown rice covered with minced parsley and grated hard boiled egg-yolk
Steamed green beans
Purée of steamed dates

(*Protein*)

Cottage cheese and pineapple salad
on crisp endive
Gelatine dessert with cream

NOTE—For children between two and three years of age substitute the following menu:

1 oz. grated almonds and 1 oz. chopped celery
on two slices ripe tomato
Steamed chard
Baked carrots
4 oz. orange juice jellied with plain gelatine

The one-session day customary in some schools allows not more than one-half hour for the lunch period. It is necessary for the parent to decide (considering the child's preference when possible) whether the pupil will buy his noon meal at the school cafeteria or take a lunch packed at home. One difficulty that arises in buying the lunch is that pupils in some schools are permitted to leave the buildings, and all too frequently girls and boys who are carefully instructed at home, disregard their parents' instructions and spend the lunch-allowance on sweets, cakes, and mineral waters. The result of such action is certain to be noticeable in lowering of physical stamina as well as in class-work.

Lunches served in school cafeterias are almost always adequate, usually palatable, sometimes well chosen, but rarely planned with the rules of compatibility in mind. An occasional visit will keep the parent posted concerning the actual conditions, quality, cost, and quantity of the foods served. In one school a service has been instituted in connexion with the cafeteria that is ideal in every respect. On each Friday at noon, menu cards for the ensuing week are distributed to all pupils. It is possible to determine exactly what expenditure will be required for each week in advance. Then, knowing what type of meal and exactly what foods the child is having at noon, the mother is able to plan his breakfast and supper (or dinner) menus accordingly.

Here is a valuable project for some active woman's club to sponsor in every school where food is served. The advantage to pupil and parent are obvious. If it were carried a little farther—to the point of allowing each child to return these cards marked to show what foods he wished, it would undoubtedly prove to be a means of increasing the economy of the department. Until the time when only really compatible meals are served, or such a service as this is introduced into all schools, the child must be taught to choose his food correctly as to the compatibility of the items selected for each lunch, and in relation to the type of evening meal he knows he will be served.

THE BOX LUNCH

In many rural schools where all of the pupils must bring their lunches from home, one warm food or beverage is now being served each day. Mothers must take the trouble to learn what foods are to be served, and to determine whether they wish their children to partake of them. When the child takes his full lunch from home, a well-equipped lunch-box is a necessity. The metal ones are best, since they can be thoroughly washed with plenty of soapy water, then scalded with boiling water. Take care of the box in this way as soon as it is returned home every afternoon. Let it stand with the top wide open until used again. There will be no trouble about stale food odours. Choose a knife that will cut, a fork of convenient size and weight, and spoons of silver or composition. The flavour of delicate foods such as custards or gelatine may be entirely spoiled when eaten from a misshapen or tinny spoon. There should be one regular thermos bottle for soups or beverages. A wide-mouth thermos is ideal for carrying salads or desserts. Keep a supply of paper napkins, plates, and cups in several colours. They are now available in sets showing a uniform pattern of decoration at a very small cost. Cellophane and waxed paper come in clear bright colours to add variety to the appearance of the individual packages that fill the lunch box; for each article must be separately and securely wrapped to avoid the mingling of food odours. Fat little glass jars holding four, six, or eight ounces, with lids that screw on tight are excellent and amusing holders for moist articles. The metal lids may be enamelled (on the outside) in colours to match the lunch-box.

A happy mental state is a great help to enjoyment of foods and also to the actual physical process of digestion. Brighten the lunch-hour occasionally, especially on rainy days, by tucking a small surprise into the box. Include a Dessert Bouquet made by tying a few raisins or nuts in six small packages, each wrapped in a different colour of cellophane or some in metal foil and all tied together with a small green bow. An original rhyme or jingle telling a bit of news or announcing a visit will delight your child beyond words, and take the clouds right out of his sky.

No child under six years of age will carry a packed lunch. Small children must have individual attention and supervision at meal times.

SPECIMEN BOX LUNCHES

(*Alkaline*)

Vegetable soup
Salad: ¼ cup sliced almonds
¼ cup chopped raisins
½ cup sliced celery
½ cup diced apple
Milk or junket

(*Carbohydrate*)

Celery hearts
Raw tomato
Crisp lettuce
Whole-wheat bread sandwiches—filling of butter, crisp fat bacon and hard boiled egg-yolks
Sweet chocolate or cakes

(*Protein*)

Protein salad—such as chicken, cottage cheese, lamb, or nut and vegetable—packed in carrot shells or pear cups.
Fresh fruit
Cup custard made with half-cream, half-water—sweetened with chopped raisins.

MALNUTRITION

This terror of mothers, infant malnutrition, originates in this very same mother, who was unable to transmit to her child any better state of nutrition than she herself possessed. The most pathetic sight one will ever encounter is the last stages of infant malnutrition, with the little bird-like neck and little claws for hands, the old-age face, and the pitiful wailing that seems always to be interpreted as a cry for more food. Feeding of the usual foods in such conditions is merely adding fuel to a fire that is well beyond control, for the more food that is ingested the worse does the nutritional state become until death too often closes the pitiful scene. Malnutrition at birth is continually aggravated by the feeding standards in vogue, and the only ones that live through a prolonged period of malnutrition are those exceptions able to build up a sufficient resistance in spite of the abnormal feeding.

Feeding nothing but fresh, unsweetened fruit juices, with a little raw vegetable juice also, will usually still the continual cries of the little victim of malnutrition, for these give the little body the things the mother was unable to furnish during the gestation period, and from this point it is easy to start more substantial nourishment in the form of modified raw bovine milk, or better, a little goat's milk.

Keep it firmly in mind that every case of malnutrition is a deficiency at birth, or has been created after birth by feeding of those things not sufficiently prolific in vitamins and body salts, aside from the very few cases of organic stricture of the digestive tract —surgical cases, in other words. These last are very few indeed, but a few cases have been recorded of stricture of the oesophagus or pylorus, where the right form of surgical operation did save the life of the infant.

Correction of deformities and repair of wounds furnish a perfectly legitimate field for the surgeon, where he may shine to his heart's content, and where he may be really the source of great good to humanity.

Strong food for the strong, plain, and simple foods for the weak, will solve the great problem of malnutrition in infants or adults.

Every case of malnutrition is a simple thing, apart from the organic surgical cases, and each such case can be corrected rather quickly by the withholding of all foods until the little weakling is able fairly to digest these, and supplying all needs for a few days at first with fruit juices and raw vegetable juices. Together with this care should always go strict care of the colon, for malnutrition accompanies either obstinate constipation or diarrhœa. Even the diarrhœa is the result of wrong feeding, a collection of undigested food residues that the little body is seeking to get rid of through this forced activity of the colon.

Think of the horrible odour of the stools in malnutrition and you will need no further evidence that this discharge is made of putrefying residues, fermenting as to starches and sugars, putrefying as to proteins.

Do not allow these undigested residues to collect, and you will have cut off much of the intoxication that is making proper nutrition an impossibility. To accomplish this use the simple enema of a cupful of tepid plain water three times a day, injected slowly until all is in the colon at one time, to wash out these obnoxious materials.

Better and still more important is to allow nothing to enter the digestive tract that requires a digestion beyond the ability of the very feeble infant, and no materials will then collect to cause either the usual fermentations or putrefactions that are always present in every case of malnutrition. We used to call this state of the infant 'marasmus,' and it was always all too frequent in occurrence.

Now never forget for one moment that the whole tendency originates in the deficient chemistry of the mother, aggravated from the moment of birth by wrong feeding, and every such case cries loudly of deficiencies.

The shortest way to relief is first to supply these through the use of fruit juices and raw vegetable juices, beginning with small amounts and increasing as these are well borne. In bad cases it is best to begin with a tablespoonful of plain orange juice and a teaspoonful of raw vegetable juice, repeated every two hours for the first day, then the interval lengthened to three hours and the amount of juices doubled the second day, with the three-times-a-day enema of tepid water, one half pint.

If by the third day there is distinct improvement it may be well to try a little milk, using one-third raw certified milk and two-thirds sterile water (boiled will do), with a little cream and milk sugar, or lactose added. Give not more than an ounce at first and wait three hours before repeating the dose, meanwhile continuing the juices at the same dose.

If the milk is well borne, if no curds or vomiting occur, then add another ounce to each feeding next day, and by the next day, if everything is still going well, lengthen the intervals to four hours and double the milk formula.

For one pint of milk use two of water, and add one ounce of thick cream and two heaping teaspoonfuls of the milk sugar, which should be enough for an entire day until the baby grows strong enough to take more.

Keep the formula in the refrigerator, and shake before pouring out the amount for each feeding. During all the years of my practice after adopting the natural idea in feeding I have seen no case of malnutrition in which it was ever necessary to do more than the simple things outlined above, nor have I seen one failure during these many years.

It is too hard to keep the little spark of vitality alive in malnourished children if they are subjected to full feedings, as they are usually, and it is not strange that the mortality is so high in these little unfortunates when they are asked to do something that only healthy infants can accomplish. I firmly believe that every infant born alive and whole in all its parts is a potentially perfect adult, if fed correctly from birth, and I still can see no reason why this should not always be true.

FOOD FOR CHILDREN FROM ONE TO TWO YEARS OF AGE

During the first six months of the second year, the feeding-schedule will remain the same as for the latter months of the first year. Four feedings a day: at 6 A.M. —10 A.M.—2 P.M.—6 P.M. At about eighteen months a new schedule of three feedings or meals per day may be inaugurated; although the four feedings may be continued if it seems more desirable. This year plain milk soups are included in the child's diet, the daily feeding of one egg-yolk is begun and the first starchy food—potato—may be introduced.

Specimen of daily schedule—four feedings—first half of year

6 A.M.

½ cup orange, tomato, or pineapple juice.
1 cup milk.

10 A.M.

½ cup puréed fresh steamed vegetables (using asparagus, celery, green beans, green peas, beets, carrots, lettuce, etc.).
1 cup milk.

2 P.M.

½ cup sieved baked or steamed fruit (apples, pears, peaches).
1 cup milk.
1 poached egg-yolk (after 15th month).

6 P.M.

½ cup vegetable broth.
1 cup milk.

Three-meal feeding-schedule—last half second year.

Specimen Menus

Breakfast: 6.30 or 7 A.M.

½ to ¾ cup fruit juice.
1 to 1½ cups milk.

Lunch: 12.0 noon.

½ cup milk soup—made by combining 2 oz. puréed vegetable with 2 oz. milk. Serve warm.
4 tablespoonfuls steamed, puréed spinach (leafy veg.).
4 tablespoonfuls steamed puréed beet (root veg.).
Cup custard—made of ½ cup milk and 1 beaten egg-yolk, no sugar. Poach in oven.
½ to 1 cup milk to drink.
4 tablespoonfuls mashed ripe peach.

Supper: 5 or 5.30 P.M.

½ cup vegetable broth.
8 tablespoonfuls puréed steamed green lima beans.
2 tablespoonfuls finely sieved baked or steamed potato.
4 tablespoonfuls sieved pulp of raw tomato.

FEEDING THE PRE-SCHOOL CHILD

The early period of accelerated growth takes place between the ages of two and six. Frequently there is a diminution in the care of the child, whom parents feel to be less in danger from malnutrition and other diseases because he is past infancy. During the third year the transition from a liquid and semi-solid diet to one more widely diversified should be accomplished. The temporary teeth should have erupted, the salivary glands are functioning and the child is ready to include the cereals, nuts, and all the fruits in his diet. Each day his food should include the following:

1½ pints to 1 quart milk.
1 egg-yolk.
1½ oz. butter.
Fresh raw fruit or fruit juice—1 or 2 servings—4–8 oz. cooked fruit—1 serving, 4 oz.
Raw leafy vegetables—1 serving daily (carrots, celery, lettuce, cabbage).
Cooked leafy vegetables—1 serving daily.
Cooked root vegetables—1 serving daily.
Potato, bread or cereals—1 serving daily.

Dessert: custard—gelatine—junket—once daily.

Cottage cheese may be served occasionally during third year.

Beginning with the fourth year a weekly or semi-weekly serving of lamb, chicken, beef, calf liver, or white fish may be permitted. However, fish is highly acid-forming and is better omitted in some cases.

Specimen Daily Menu for Child between Two and Three

Breakfast: 8 A.M.

4 oz. fresh fruit (ripe peaches, grated apple, etc.).
1 to 2 cups milk.

Lunch: 12.30 P.M.

Chopped celery (4 oz.) on sliced ripe tomato (2 oz.).
6 oz. steamed chard served with poached egg-yolk.
4 oz. mashed potato (containing butter).
1 oz. steamed raisins with 2 tablespoonfuls thin cream.

Supper: 5 or 5.30 P.M.

½ cup vegetable-milk soup (1¼ cup puréed vegetable, ¼ cup milk. Serve warm).
4 oz. steamed summer squash.
4 oz. buttered brussels sprouts.
4 oz. fruit gelatine.
1 to 2 cups milk to drink.

Specimen Daily Menu for Three Year Old

Breakfast: 8 A.M.

1 cup raw tomato juice.
1 serving crisp whole grain cereal served with thin cream and a little honey if desired.

Lunch: 12.30 P.M.

4 oz. mashed, steamed prunes.
4 oz. steamed cauliflower.
4 oz. mashed steamed yellow turnip.
2 tablespoonfuls shredded lettuce with few drops olive oil.
6 oz. junket.
1 to 2 cups milk to drink.

Supper: 5 or 5.30 P.M.

4 oz. vegetable-cream soup ($\frac{2}{3}$ puréed vegetable, $\frac{1}{3}$ thin cream).
4 oz. green peas (steamed) served with 1 grated hard-boiled egg-yolk.
4 oz. steamed beet tops.
1 ripe banana sliced and served with one tablespoonful raisin syrup.

Specimen Daily Menu for Children of Four and Five Years

Breakfast: 8 A.M.

1 cup orange juice.
1 to 2 cups milk or more if desired.

Lunch: 12.30 P.M.

4 oz. vegetable soup.
2 oz. chopped raw carrot and cabbage combined.
2 oz. lamb patty broiled on 1 slice pineapple (be sure pineapple is unsweetened) or 2 oz. shelled almonds.
4 oz. steamed green beans or kale.
2 oz. slices ripe tomato.
Fresh fruit.

Supper: 5 or 5.30 P.M.

- 4 oz. chopped lettuce.
- 1 cup steamed cracked wheat (serve with butter).
- 4 oz. steamed celery.
- 4 oz. puréed steamed beets.
- 1 raisin cup custard (made with half cream and half water, 2 tablespoonfuls chopped raisins). Poach in oven.

FOOD FOR CHILDREN OF SCHOOL AGE

After the child reaches the sixth birthday his food needs are similar to those of an active adult. He has become accustomed to taking his food in compatible combinations and may be able to choose correctly the foods he eats at the school lunch-room. It behoves the mother to keep informed as to what foods are served at the school. If the child has a starch luncheon then his breakfast should have been alkaline and his supper may be of either the protein type or the alkaline type with plenty of milk.

A reliable food-chart is a necessity for every mother unless she is unusually well-informed. Remember to use whole-grain cereals, unrefined sugar, and whole-grain breads in place of the usual emasculated, impoverished white flours and sugars. Serve all foods in compatible combination and keep the alkaline reserve in the body in a satisfactory condition by using 75 to 80 per cent. natural foods to 25 or 20 per cent. concentrated proteins and carbohydrates. Lastly, use natural seasonings—herbs and vegetable salt—in place of the inorganic salt, the vinegar and pepper that drown out natural food-flavours.

Specimen Daily Menus

Breakfast: 8 A.M.
Fresh acid fruit.
Milk to drink (up to 2 cups).

Luncheon: 12.15 P.M.
Raw vegetable juice.
Riced steamed squash with parsley.
3 slices crisp fat bacon.
Shredded beets.
Date and nut salad.

Supper: 5.30 P.M.
Green leaf salad.
Chicken soufflé.
Fruit cup.

NOTE—Luncheon and supper menus may be reversed.

On rising—7.30—1 cup orange juice.

Breakfast: 8 A.M.
Coddled egg-yolk.
2 slices buttered toast.
1 ripe tomato.

Luncheon: 12.15 P.M.
Fruit salad.
Steamed carrot rings and green beans.
Junket or gelatine dessert.
Milk to drink (up to 2 cups).

Supper: 5.30 P.M.

Vegetable soup.
Salad: cottage cheese and pineapple balls on lettuce.
Steamed cauliflower.
Buttered peas.
Baked apple with honey or raisins.

CHAPTER VIII

THE SECOND YEAR (FIRST TO SECOND BIRTHDAY)

THE healthy baby does a great deal of growing during his first year. When the first birthday is celebrated he is usually getting about by creeping. He may stand alone or walk if small and active. A gain in weight of about 12 pounds is usually shown, and a gain in height of about nine inches. He probably has a vocabulary of a few words, is the proud possessor of six teeth, and has developed some fixed habits. As early as this he is forming permanent personality traits: cheerfulness or sulkiness, a temperament responsive or unsocial. He needs the constant supervision of a pleasant nurse who can tactfully regulate his behaviour and unobtrusively guide his development in every direction.

During the first few years the nursery is his world. Furniture built in correct proportion is essential to the child's happiness. It is so easy for the adult members of the family to overlook this consideration. How would the father feel if he moved constantly in surroundings where dining-chairs were three times his height and hassocks could be mounted only by difficult climbing? Where sitting upon a chair left his feet dangling over the edge or stuck ignominiously before him causing aches and pains in back and hips? Very sensitive children may place the cause of their maladjustment to the world at large upon the fact that they have grown to childhood with a wrong sense of values due to finding themselves constantly dwarfed in relation to their surroundings.

Firm flesh, skin glowing with health, bright eyes, clean teeth and gums are natural assets of the normal young child. Regular increase in weight and height indicate correct nutrition and health habits. Average growth between the first and second birthdays produces increase in height of about three inches, and increase in weight of about one-half pound per month. Always remember that these average figures are a guide to what may be expected; and that steady constant increase is the goal to which parents should aspire. Family and racial characteristics are important factors in growth and development, as has been mentioned before.

By the eighteenth month the fontanel should be closed. The physician is watching this if he sees the child regularly. Do not neglect an examination when there is abnormal delay in this important process.

As the child becomes older, the rate of growth decreases naturally. Diet is the primary factor in growth and development, for inadequate food means lack of nourishment with resulting lowered function. Given correct and sufficient food, growth and development then depend upon proper metabolism of the elements supplied. This process is largely controlled by the ductless glands, glands of internal secretion. At least one authority definitely associates the individual glands with metabolism of particular vitamins, just as we know that certain of them liberate characteristic secretions containing minerals. Rest, sleep, play, fresh air, sunshine —all contribute to the well-being of the child. Each enacts its particular *rôle* in development and maintenance.

Ten new teeth may be expected to make their appearance during the second year: the lower lateral incisors, upper and lower anterior molars, the four cuspids, in the order named. Inadequate nourishment during or after the pre-natal period will be reflected in composition of the teeth and development of jawbone. The habit of thumb-sucking must be corrected, or, better, prevented: it will interfere with proper jaw-formation. A visit to the dentist at the second birthday will be profitable. Where all the teeth have appeared perfectly and in the proper order, the dentist may look them over and make the child's acquaintance. Subsequent regular visits will be anticipated with pleasure.

Proper and regular cleaning of the child's teeth with a small brush must be done by the mother or nurse for several years. No child will be thorough enough in this, unless carefully supervised. Perhaps by the time he goes to school he may be permitted to do the brushing. Inspection by an older person should follow each cleaning.

General body conditions are indicative of condition of the teeth; whatever affects one also affects the other. Food, sunshine, exercise, fresh air, rest, and supervision by a reliable dentist are factors in tooth-health.

Unceasing vigilance must be directed upon the diet of a growing child. See that he learns to like the proper foods; this can be assured by excluding objectionable items such as pastries and candies from his dietary. The wide choice in selection of vital foods permits substitution from the same class for a particular kind that is disliked or not well tolerated by the individual. (See Chapter VII for detailed information on diet.)

During the second year the child requires from fourteen to sixteen hours' sleep out of each twenty-four. Regular bed-time hours must be observed, from the six o'clock feeding in the evening until six or seven in the morning, and two naps during the day. This is a great getting-around year; walking continues to be a wonderful experience, exploring house and garden the favourite pastime. Actively busy through every waking hour, the child is completely tired out by bed-time; and though the baby who coaxes to stay up just a little longer is practically irresistible, we regret that schedules must be schedules and turn a deaf ear, being wise parents.

Lack of sufficient sleep causes over-fatigue, irritability, nervousness; these in turn interfere with digestive processes, with loss of weight (or failure to gain) the ultimate result.

If the daily bath is given in the morning, a complete bath may not be necessary at bedtime. Although in warm weather when playtime is spent out of doors largely, a sponge bath or dip in tub of tepid water will assure cleanliness and go far in producing calm nerves and sweetness of disposition. After he is washed or bathed the child should be dressed in his sleeping garment, light dressing-gown and slippers; given his supper, and then quietly entertained for a half-hour or so before going to bed. Brushing of teeth, toilet, and washing hands will be incorporated in the routine of bedtime.

The evening time (5.30 to 6) ought to be the happiest period of the day for little children. They are well fed, clean, and comfortable; and when they snuggle down for bedtime story or lullaby are at their very sweetest. Here is the high spot of the day for adoring parents. Many fathers see their young children only at this hour during the business week. The majority of such fathers have to learn the importance of tranquillity at bedtime. Romping or excitement of any kind may not be permitted, and no stories that might produce agitation or fear. Such incidents promote restlessness or wakefulness with accompanying irritations.

At the regular hour, the child will be put into his bed and suitably covered, the windows adjusted, light turned out, last good-nights said, and the door closed, as nurse or parents leave the room. The earlier any child learns that he will receive no attention when he calls for a drink, just that much earlier will the parent be spared the endless running about occasioned by badly trained children. It is natural for an active child to drop into a deep sleep almost as soon as he touches the bed. Habitual restlessness or fretful crying may be due to discomfort caused by unsuitable (usually too heavy) bed-clothing or too much or badly selected food at supper. Make him as comfortable as possible, but do not pamper the child by holding his hand or taking him from his bed. Sudden crying or high temperature are symptoms of pain or illness that may not be disregarded. But remember that doctors are human and need sleep at times; and try not to call your physician out in the middle of his too-short night for just a plain stomach-ache.

Action is play for the young child. Give him large rubber balls to roll, smaller ones to throw. He may be taught to climb if carefully supervised. Smooth, low sliding-boards are favourites among play-time equipment. An excellent contrivance for developing rhythm and muscular control is the safety swing. Games with mother and other members of the family can be employed as means of teaching new words, of training all the senses—smell, touch, sight, taste, hearing—of developing memory by recalling former experiences, of beginning appreciation of art through seeing pictures clear in outline and done in the primary colours, and of learning the joy of music by the singing of simple tunes. See that each new word learned is plainly pronounced. This means teaching short, easily mastered names for objects. The temptation to allow baby-talk can easily be mastered by picturing the child at ten or twelve the butt of his school-mates' jokes because he continues the 'cute' lisp he learned in infancy. Obedience may be taught through games that call for errands within the room. Courtesy towards a child will generate a courteous attitude on his part. Stubbornness is frequently the result of insulting his dignity. The fact that each individual is of importance in the family as in the world should be early learned. There is no inherent danger of egoism from this teaching if the rudiments of courteous behaviour have been established.

Posture is habitual. Malnutrition, causing underdevelopment of the skeletal structure, produces the typical slouch of the round-shouldered person. After adequate food, exercise outdoors and sleep on a flat, smooth bed are instrumental in building straight bodies. When learning to walk, the child uses new muscles in maintaining his balance. Teach him to stand with his toes straight before him, abdomen and buttocks in, and chest out. Pedalling a small vehicle, as a tricycle, will provide good exercise for the foot and good fun for the child.

Running, throwing, and climbing are natural movements. They develop muscular control and balance. The use of selected toys and implements of eating will gradually teach finer control, judging of distance, etc.

Soon after the first birthday, a play-pen becomes a necessity. Supply a few safe toys and observe the cunning things an intelligent baby will do with them. Short rhymes, using simple words, may be taught as the child plays in his enclosure. And when playtime is over, see that each toy is put in its accustomed place. Low shelves or drawers within reach of the child must be provided for this purpose. Habits of orderliness cannot be learned without accessible ' right ' places for toys. Adherence to a regular time-table through the day will be helpful in instilling in the child's mind the spirit of ' a time and place for everything.'

The small child who seems to have a particular affinity for dirt and torn clothing is an active one, hence a healthy specimen. Establishment in infancy of habits of personal cleanliness, that is, daily bathing, frequent washing of hands, regular brushing of teeth, and dressing only in clean clothing will yield favourable results. Being so trained, the child may tear his garments or sprinkle sand in his hair; but such things should be remedied the moment play is over. If he looks upon a decayed area in an apple or soft spot in an orange as a ' sick place ' there is no danger of his eating such things. Outside of active outdoor play, the child who has been taught cleanliness will naturally be fastidious about himself, his food, and his clothes.

One of the best methods of imparting knowledge is through encouragement of imitation. Supply small replicas of household equipment and parents' implements and utensils, then help the child to learn proper manipulation of them. Let praise be generous when accomplishment merits it. Nothing is gained by impatience or scolding for a failure. A small child's anxiety to please must be rewarded with commendation else future efforts may not be forthcoming.

CHAPTER IX

THE THIRD YEAR (SECOND TO THIRD BIRTHDAY)

THAT much-talked-of pre-school age begins with the advent of the second birthday. In relation to infancy, this between-age is frequently overstressed. Young mothers, congratulating themselves upon having successfully brought their children through the old bugbear 'second summer,' may be alarmed by this over-emphasis which has been developed to combat a proportionate neglect or laxity in care of the child emerging from infancy.

Any one or all of the three contributing causes may be responsible for this condition in different homes. First, the very natural desire upon the part of the mother to ease a little the strain of rigid living by schedule: second, the arrival of a new baby who usurps the attention in the nursery; third, the fact that this two-year-old has held the centre of the family stage since birth, and now must be satisfied with whatever care and money can be given for his needs after the other children's requirements and desires are met.

However, to the parent who is consistently conscientious, one year is altogether as important as another. Any temptation to grow less exacting in matters of method and care will have to be put aside.

Here let us say, beware the martyred attitude that so insidiously takes possession of many young mothers. It is unnecessary for them to deny themselves any social contact and recreation—more than that—it is foolish. Constant care of a baby is very tiring. It tends to cause nervous irritability and leads to dullness of mind and spirit if continued too long. It is a wise economy to secure the services of a nurse or some well-qualified woman to take full charge of the nursery at regular times, giving the mother stated periods of leisure. The baby too needs a change. He should realize at an early age that there are a few people in the world besides his mother and father. Babies who scream at strangers and behave badly when approached by visitors are not only unlovely but are building up unsocial personalities a shade less than beautiful.

Regularity in sleeping, eating, and playing remains just as important as ever. Upon this foundation is built normal physical health and nervous stability which is a vital factor in future personal psychology, particularly in situations involving matters of sex. Insist upon unvarying observances of rules of cleanliness, cheerfulness, courtesy, and neatness. See that the child breathes quietly through his nostrils, habitually carries his body erect, has no defect of eyes or teeth, gets plenty of sunlight in summer, and in winter is exposed to irradiation by sun-ray lamps under direction of his physician. Regular toilet-habits have been established and should give no further trouble if a correct dietary is provided.

Between the second and third birthday average growth produces increase in height of about three inches, in weight about five pounds. Boys usually weigh a little more in proportion to height than do girls. During this year (usually by the middle of the year) four more teeth appear. These are the four back molars, and they complete the temporary set. Care for them religiously.

See that no one feeds the child with items not included in his dietary. What he eats now is building his future body.[1] In this sense the child is literally the father of the man. But we must relegate to the place of forgotten fallacies the oft-repeated statement that " the child is a miniature man." In no sense is this true. His physique differs from that of the adult in that each vital organ shows a difference of ratio to the total body weight. Thus, function fluctuates because of adjustments that must be made within the body due to the development and degree of activity of essential glands and organs. Mental and physical equilibrium will be disturbed at times due to natural changes as the child grows older.

A quiet rest-period, not less than a half-hour during the morning, and an afternoon nap are essential to the well-being of the child in his third year. He must continue to observe the 6 P.M. bedtime. Sleep will probably be out of the question before noon, but a story or music will be welcomed as a change from active play. For the afternoon nap the child should be undressed, washed, put into light pyjamas, and placed in his bed to sleep.

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[1] See Chapter VII for detailed information on diet.

Play is likely to be of the noisy, boisterous type. Musical tops, drums, bright-coloured toys, balls, wagons, dolls, and miniature household furniture and utensils are enjoyed equally by most boys and girls. A sand-pile will furnish endless pleasure for the child now and for several years to come. Shouting and flying about at what seems a shocking pace is natural at this period. The child needs activity—he needs to get tired every day. That is why care must be exercised in regard to rest and sleep. Physical fatigue is not harmful if not carried to extremes or allowed to accumulate. The foundations for pathological fatigue of later years may be laid early in childhood through insufficient rest and incorrect diet.

Now is the time to direct particular attention to development of memory. Every organized game with other children or adults requires the exercise of this valuable mental trait. Questions asked after a walk, a new experience, or contact with new people will help. The child should learn a few stories, rhymes, and songs. At this age mark the introduction of new and strange characters into old stories and fables. Be prepared to meet unseen playmates invented by many children and thoroughly enjoyed. Imagination is beginning to be manifested. This is a valuable, a desirable development, and it behoves the mother to pray for unusual wisdom in dealing with it.

Imagination is in reality creative, constructive thinking. The child is familiar with an object or idea. He adds to the known qualities of the object or idea a new trait that is the product of his individual mental process and in this way has demonstrated his power to use the most valuable instrument of intelligence. Vivid imagination determines the difference between genius and the mediocre personality; and in less degree, between the brilliant and average child. Ability to visualize unseen qualities in objects and possibilities in situations is determined by this marvellous instrument —imagination.

One danger presents itself with the imaginative little one. If given free range, this talent may run away with the child and make of him a thorough nuisance to society—a 100 per cent. liar. In every group or community there is one member known to have the propensity for exaggeration, or worse, to be totally unable to speak the truth even though he must be at some pains to invent fiction to suit the occasion. This every parent wishes to prevent in his child. How to know when gently to bridle this galloping steed and direct his course cannot be advised. It requires intuition, tact, patience, and courage to handle the situation. Do not be alarmed at small breaches of truth.

See, rather, that no child is ever frightened by threats of dire punishment for interpreting situations according to his own ideas.

Attentiveness is the beginning of concentration. Unlike imagination it is not natural to children but must be cultivated. However, the ability to fix the mind upon a given idea or plan, shutting out other thoughts, is essential to the development of memory. This power of concentration determines to a marked degree the disparity between persons of quick and slow mentality. The child who is precise in his observations is likely to be definite in his conclusions, while the child who mentally wanders all about a subject will have only vague impressions that soon fade into the widest generalities. Teach your child to be definite in his descriptions. Help him to realize the difference between saying " a flower " and " this fragrant pink rosebud." The choice of expressive language will be developed through such training.

With the development of personality comes egoism. It is a grand moment for the little boy when he takes his first obstinate stand, announcing proudly, " I will not go to bed to-day." While he may appear too knowing for words, he must not be allowed to cause a scene or feel that he is being amusing. A quiet explanation that this is a day like every other, and will be lived as any other day is lived, must suffice for answer, then strict observance of usual rules followed.

The full realization of personal possession will dawn upon the child soon. He will make constant use of ‘ my ’ and ‘ mine.’ His wishes in regard to his own belongings should be respected; but this matter of possession presents the possibility of teaching generosity. Being one of several children in a family is one sure way to learn the idea of sharing with others, though gracious giving frequently must be cultivated. Praise for generosity is valuable in teaching this happy trait. Never forget to thank the child for offering to share the things he likes, or when he brings a gift, however small. Let him understand that possession means having the privilege to share with others the things he values.

Young children are constantly learning; their early knowledge is gleaned from observation and demonstrated through imitation. Kindergarten work is often given unconsciously at home through games and stories, quiet play at building blocks or folding paper. Spools of thread, or sheets of construction paper may be used to teach the primary colours and later the degree of colour or shades. Appreciation of texture, that is smooth, rough, coarse, fine, can be taught by handling materials. Give the child blocks and balls of different sizes and materials. He will soon learn the significance of heavy, light, large, small, and other descriptive terms.

Form and number may be taught through games with objects that are round or square, flat or tall, singular or plural in number.

Modelling clay is no longer expensive. It will delight any child and help immeasurably in his acquiring self-expression. Coloured crayons and large sheets of heavy paper provide entertainment for hours on end. Stringing beads or buttons, and cutting paper with blunt-end scissors, call for supervision; the tendency among children to push buttons into their ears, swallow beads, or cut each other's hair is extremely common.

The mother who can spend most of her time with her small child, and is willing to do so, need not think of nursery schools for the normal unspoiled child of two. But if her time is so taken up with other interests that the care of the baby is a burden or if she finds she lacks aptness in handling the child, the nursery school is the answer to all of her supplications. Some children need association with others at an early age and some need to be relieved from the doting mother's attention at times. The child's personality must be taken into consideration, the school investigated thoroughly, and its practices and dietary approved by a physician who knows compatible foods even when he sees them on a menu. When conditions favour it, and the schedule is fitted to the child's needs, the nursery school is a valuable institution.

CHAPTER X

THE FOURTH YEAR (THIRD TO FOURTH BIRTHDAY

THREE birthday candles! Now the child has become a sturdy little girl or boy. Differences in preference for games and personal belongings may be noticed, though for the greater portion of the time all are simply children enjoying the same lively play, the usual favourite stories, etc. Eager to acquire knowledge and to exercise the senses that are developing so keenly, the three-year-old is continually on the move—never still, never quiet. His steady barrage of questions is bound to keep parents on the alert and although they may sound ridiculous at times, every query calls for a definite, truthful answer.

Normal growth continues to result in regular increase in weight and height. Three to four inches will be added to stature and approximately five pounds gained in weight during the fourth year. See that the child is acquiring correct habits of posture. It is quite as easy and much less tiring for him to walk, stand, and sit erect. Regular health habits are being carried on now as a matter of routine—habits of bathing, sleeping, eating, cleanliness, and elimination. This observance of time-table is the first opportunity of teaching discipline. Give the child enough time to do the things asked of him. If five o'clock is the end of play-time, tell him ten minutes before five that it is about time to put away his toys. Play is most important to him: it should not be rudely interrupted or arbitrarily terminated at a moment's notice.

The three-year-old should know his full name and the names of members of his family and neighbours. He should be able to state his address correctly; know some flowers, animals, and birds by name; be able to distinguish left from right. Keep a careful watch over his diction, both for choice of words and accuracy of pronunciation. Help him to attain clarity of expression through careful observation of things to be described. This year he should learn the days of the week and the difference between seasons, although he cannot be expected to learn names of months or comprehend the duration of such a long period of time. He should learn to dress himself completely. Clothes must be plainly made and fastened with rather large buttons to make this as easy as possible for him. Mother or nurse needs patience in this matter. Keep the number of garments to a minimum. In warm weather brief overalls with ankle socks and sandals are the best possible clothing for both boys and girls during play-time. Children must be dressed warmly enough in winter to keep them comfortable; hands and feet should be warm but not perspiring. Include goloshes and gloves with long cuffs to cover the wrists in every outdoor costume for cold or stormy weather.

Playing with other children, the young child hears of foods new to him. Perhaps a kind neighbour gives him dainties that please him. He must be taught never to eat anything unless it is approved by his mother. (See Chapter VII for accurate information about diet.)

Twelve to thirteen hours' sleep at night should be continued, with forenoon rest-period and afternoon nap regularly observed. The vigorous child may be expected to show signs of rebellion at times, but he needs his afternoon nap as much as ever.

The 'only' child may have been distinctively individual in his play up to this age. Now he begins to show the effect of group-activity. Every child must be taught to enjoy quiet play alone. Through it he acquires a degree of independence, develops concentration, and learns to make his own choices. The child who must be entertained every minute becomes the adult who dreads finding himself alone—a sorry sort of person. There is, however, a need for association with children who are his equals in intelligence, age, and physique. Group-play teaches valuable lessons in courage, honesty, sportsmanship, and adjustment to the wishes and ideals of others. The problem of choosing desirable playmates is one that deserves serious consideration. No child should be admitted to the group when his influence is known to be detrimental, no matter how important his family may be in the community.

All children under ten years of age need constant but unobtrusive supervision. Let them settle their own disputes if possible, but see to it that the decisions are fair.

Much childish play is imitative either when alone or in groups. Both boys and girls like to play at building, housekeeping, preaching, and selling. The imaginary playmate may become a dear companion. This make-believe friend owes much of his popularity to his magic ability to become brother, sister, policeman, maiden aunt, or sailor, at a moment's notice.

Simple toys impervious to frequent washing and rough usage are to be preferred. Peg boards and mosaic boards, small toys on wheels that may be pulled about by a string, gardening outfits of diminutive size may be added now to the balls, blocks, dolls, and wagons of last year. Scooters and sleds are permissible. Some children are taught at this age to play on roller skates, but it seems a dangerous practice. Mechanical toys and electric trains are far more likely to interest the adult members of the family than the children who, as a rule, do not desire to be lookers-on but, rather, doers.

Courtesy has been called the golden currency of social exchange. To be sure, example is the most effective method of teaching beautiful manners. Habits of gracious living will be acquired only among pleasant folk who are accustomed to doing things the happy way, and to considering the desires and feelings of those about them. Let the child from earliest infancy be silently taught these precepts and he will likely grow into decorous manhood.

Now, exemplary living is not easy. It amounts to exposing one's self to continuous observation, then inviting detailed criticism of any action. But the child is largely a creature of imitation; he does and says the thing he sees and hears, often with embarrassing accuracy. Should he indulge in temper tantrums, or scream to obtain the things he desires, it means simply that he has been taught neither self-control nor obedience. The discipline of ordered living should be the first lesson in obedience. To encourage obedience for the satisfaction it gives both a child and parent is far superior to issuing impatient demands that can be enforced only after an exciting emotional scene. Let commands be few—requests bring better results. Discipline should be fair and consistent, and any necessary punishment must be administered in proportion to the misdemeanour. Being human, parents may become angered by disobedience of their child, but being parents, they must subdue the fury that may engulf them when their offspring exhibits symptoms of stubbornness or impudence. Parental control can never be successfully established by a mother or father who lacks control of self.

The tactile sense is strong in children. They are impelled to touch and handle any object that comes within reach. It is a wise practice to try to develop in all children the ability to use either hand equally well. To develop dexterity and finer degrees of muscular control, let the child have modelling-clay, specially cut building-blocks, blunt scissors and paper to cut or fold, games requiring skill such as ten pins, and heavy crayons with which to begin forming letters. Any tendency to be interested in reading or writing should be carefully fostered. The child who is anxious to learn is well prepared for instruction.

Little children, being highly imaginative, find keen delight in stories, rhymes, songs, and fables. They learn to love favourite characters and insist upon exactness in telling the stories they like most. Choose the literature for them with great care—it is instrumental in moulding character and later preferences in reading. Teach rhymes to develop rhythm in speaking, for the child will quickly acquire a gay lilt for happy verses that he memorizes. Stories must be full of action to hold the child's interest. They must deal largely with objects familiar to him, but new words and ideas may be presented during the story hour. Repetition is pleasing to the young child and affords a means of impressing the new terms upon his consciousness. He is developing his vocabulary, so help him by introducing useful words carefully pronounced and patiently explained.

The normally alert three-year-old will have in his speaking vocabulary about twelve hundred words. He will be able to comprehend the meaning of others that he hears. These latter make up his listening vocabulary. No matter how sheltered his life, the small child will hear and repeat undesirable words. Do not register shock or horror at the repetition of such words—to do so will only impress them more strongly upon the receptive mind. Rather, simply state that such words are impolite, and they will be forgotten. Crude behaviour can be dismissed in the same manner eliminating the need to use disparaging terms.

Free and rhythmic movements are natural to all healthy children. Practically no effort is required to follow instructions, before the child has acquired inhibitions or fears or the awkwardness that frequently comes with adolescence. Teach him to walk on tiptoe to acquire balance and poise. This can be done as a game with not a word about teaching.

Alert bodies respond naturally to the rhythm of music. This response needs expression through some channel. Encourage the child who swings his arm or taps his toe to keep time, even when such action causes the tendency to be annoyed. To forbid such expression may destroy the love for music and it most certainly will create a restraint resulting in lowered appreciation of beauty—a type of dullness. The ability to express freely a response to a given stimulus, the power actually to relax and let go at times: these are advantages that, properly cultivated, will save children from the awful screwed-up-ness that is driving our present-day world to neurasthenic despair.

Expression through speech is a talent to be carefully cultivated. The dramatic urge is active in all children. They enjoy retelling and enacting stories, doing pantomimes, illustrating songs. Utilize this talent in a story-hour club. Children of the same age-group will enjoy this project that is frequently organized in connexion with mothers' clubs. Social amenity is developed and geniality of disposition promoted through such contacts. In one story-hour club the children at Christmas-time brought gifts which they hung upon a small tree that was subsequently sent to a hospital ward in the city. This is only one instance of the opportunities that can be used to further generosity, responsibility, and other happy attributes among the citizens of to-morrow.

About the third or fourth year of age the child develops a desire for live pets. Let him have rabbits, birds, a puppy, or whatever small animal he prefers. He should share in the care of this pet as one of the few duties allotted to him. One of the best ways to develop love of home and possessions is to divide the responsibility of them among those who share in their privileges and protection.

Encourage outdoor play. Every day the weather permits, every child should spend some time in the air and sunshine. If he is suitably dressed the small child will enjoy any weather. Play will be noisy, even boisterous. The child is developing his lungs, his muscles, and his mind. Becoming healthily tired is part of the natural process of growth.

CHAPTER XI

THE FIFTH YEAR (FOURTH TO FIFTH BIRTHDAY)

THESE early years are characterized by wondrous growth, both physical and mental—the ideal would be a steady progression towards adulthood. However, in many cases, after the third year, weight and height are increased by irregular bursts of development. Average gain in weight during the fifth year is approximately five pounds while three or four inches will be added to height. This year the birth-length is usually doubled. Lowered rate of growth at times need cause no alarm but should the child fail to show a gain in weight for a period of six weeks or more, it is time to look for a cause. Adequate diet that includes an abundance of growth-promoting foods (see Chapter VII), plenty of quiet sleep and regular rest periods, outdoor activity, and freedom from disease remain most important factors in development.

Keep the child well. He must have regular examinations by his medical doctor and dentist at least twice every year. Children's diseases are generally preventible. Talk health to your children and avoid discussion of illness or symptoms in the presence of any who may be below normal physically. Invalidism is clothed in a veil of mystery to the small person, and therefore interests him. Children have been known to resort to a pretence of illness in order to secure the exaggerated attention bestowed upon them at such times by anxious parents. Modern children should be taught the joy and advantage of excellent health, and as they grow older, to realize their responsibility in that direction. Through such teaching the young receptive mind may be conditioned with relation to personality values that are highly important during the entire lifetime.

Thirteen hours' sleep at night will be continued through the fifth year. Bedtime is still 6 P.M. One rest-period during the early afternoon must be observed at which time sleep is not necessary but desirable.

When weather permits most of the playtime will be better enjoyed and more beneficial if spent outdoors. Wholesome, lively play in the open air is especially needed at this period because of marked muscular development and control. Sand-piles, wagons, roller skates, swings, and see-saws—every kind of equipment that invites activity appeals to the four-year-old. But, given a large yard or field that boasts a few old trees, small children require practically no equipment. The singing brook easily becomes a mighty river, and the game is on. Never in later years can any pleasure duplicate the bliss of summer afternoons spent along a shaded stream sailing quaintly improvised ships. Toys are instruments necessary to express the play-spirit, but the toys built from materials at hand provide more real pleasure than expensive gifts that reduce playing to mechanical, denatured action.

The dilemma presented by inclement weather may easily be solved by the resourceful mother when she recognizes the fact that sustained interest, even in play, is possible for small children only when there is guidance from some one who can invent new games or new ways of playing old ones. A point to be remembered also is that a child's interest in play is somewhat dependent upon his physical condition and this will not be improved by indulgence in unusual foods given to keep him quiet. Stormy days emphasize the cosiness of home and are fine for playing at housekeeping and 'dressing up.' All unaware, the four-year-old may be taught the rudiments of housekeeping, home-making, and acceptable social standards, the teaching being cleverly camouflaged under guise of a new game. Things learned in the play-mood are at once absorbed and soon become incorporated in daily routine.

A little thought and direction will banish fretfulness and boredom from the nursery. Small children need to keep busily using their hands and bodies all through the day. Results of sewing, cutting paper, drawing, or painting may appear crude to the conventionally minded adult, while to the unspoiled and uncritical eye of the child those same results represent an approach to perfect expression of the ideal he is trying to interpret. Before offering criticism of his best efforts stop to consider the joy the child finds in his creation.

Live pets appeal to the four-year-old. Anything from a cuddly kitten to a goat is likely to catch his fancy. The love a small boy lavishes upon his dog is equalled only by the devotion of the dog for his boy. Partial care of the chosen pet now may become the child's responsibility. Through this constant care he will develop kindness, patience, and gentleness.

Honesty is a virtue natural to normal children, but because the child perceives only vaguely the value of time, place, and quantity, he must be helped in drawing a clear line between actual memory and imagination. Emotional scenes or violence of any sort can have no place in such teaching. Patient explanation and illustration of the importance of truth and the example of sincerity in members of the family are most valuable aids.

As acquaintances increase and the circle of experience widens, the observant child finds that the standards of his home and family differ in some respects from those of other children. When first he chooses between them he initiates the development of conscience. He learns to take pleasure in doing the things that meet approval and to feel uneasy when he has fallen from grace by failing to heed the silent voice that sounds so much like mother's.

A few years ago every child was taught this precept—"Cleanliness is next to Godliness." Though Godliness is beyond a child's conception, he may be taught early in life that there is a definite relation between cleanliness of mind and cleanliness of body. Respect for his physical self is a large factor in the moral code of any individual and this respect may be fostered through habits of cleanliness. Pride in personal appearance will come along with years, though every mother of a son despairs at times of inculcating thoughts of order and neatness in her young hopeful.

With a little ingenuity the mother can supply many substitutes for professional kindergarten equipment. If willing and able to give the time she can easily provide her child with preliminary training for real school life. One great advantage of home-preparation is that no adjustment to surroundings is required of the child. If kindergarten beads are too expensive, reels or buttons can be strung on heavy cord; magazines yield all the pictures any child will wish to cut out; modelling may be satisfactorily done with a mixture of salt, flour, and water. Clothes-pin soldiers have won many a hard-fought battle for small lads to whom they are as exciting as any painted product of the factory. Four-year-olds adore dressing in mother's and father's clothes. Here, good parents, is an opportunity to see yourselves as others see you, for the child is certain to display without embarrassment such social graces as he has observed in his elders. A half-hour spent in watching such play may be painfully enlightening.

Let the child have a small flower or vegetable garden. He will love to tend the growing plants. Teach him the necessity for water and good soil, and something of how the living plant uses these in building new growths and producing flower, fruit, or seed.

Welfare of children who attend organized kindergarten calls for close co-operation between mother and teacher. Frequent visits should be made during hours to observe physical conditions such as light, heat, and ventilation. The mother must take care that her child is not becoming habitually over-tired by too strenuous or long-continued exercise. Now is the best possible time to form the habit of keeping closely in touch with the child's school life. Parents ought to know their child's teachers, and should be familiar with school surroundings and conditions. Parents' Societies have done much to bridge the gap between home and school. These groups deserve the full support of every thinking citizen.

Between the fourth and fifth birthday, regular attendance at a Sunday school should be established. Regardless of creed, the moral training is excellent where a doctrine of divine love is interpreted in terms of kindness to neighbours, loyalty to friends, and aspiration to high ideals.

The little girl or boy is probably taking on a more robust appearance by the fifth birthday. The seraphic smile is giving way to an intelligent though earthly grin, and fond mothers here begin to mark the resemblance to one or another of the father's relatives in *retroussé* nose or woeful lack of dimples.

At five years of age the child should have a few regular duties to perform each day at a definite time. He should be able to read simple children's stories and to write legibly. His vocabulary ought now to include about fifteen hundred words.

Teach each child to find joy in helping others and to search for ways to bring happiness to friends and family. Some children are by nature amiable, while others show an unhappy disposition early in life. The fretful child is usually not altogether well; he may not be getting proper food, or he may be handicapped by poor eyesight; then again he may be just 'spoiled' by too much attention and adulation. The child's attitude towards others conditions his own happiness in a large degree. Through the years to adulthood, his values, while constantly changing, are taking definite form. The attitude and behaviour of parents and other members of the family are important factors in guiding and establishing a healthy mental state for the child. It is worth any effort to help him to develop that rare quality of personality—plain friendliness.

CHAPTER XII

THE SIXTH YEAR (FIFTH TO SIXTH BIRTHDAY)

FAMILY and racial characteristics have clearly shown their influence on the child's development by the sixth year. He is quite likely growing at a rate proportionate to the limitations of parents' size. Improvement in height over parents is usually due to better nutrition, though it may be a physical trait inherited from grandparents or other ancestors. At five years of age white children vary in height from thirty-six to forty-nine inches—at either extreme the individual may be entirely healthy. Weight naturally depends upon height, the average for this age being between thirty-eight and thirty-nine pounds.

Should the rate of growth be very rapid or the child continually exercising to the point of fatigue, his posture will suffer. Watch carefully—he is forming lifetime habits of erect carriage or of slouching and shuffling about, sprawling over chairs, and leaning on anything that stands upright in his path.

About this time a change is noticeable in the foot structure. The foot of a young child is " flat as a pancake," as one specialist describes the condition. He explains the ossification of the foot structure as formation of the 'second feet,' which really means that the arch has formed if the child is normal. Failure of the bony structure to take its proper shape leaves the growing child flat-footed. This abnormality may cause poor posture and predisposition to early fatigue. Have the child's shoes fitted carefully, allowing adequate room for expansion in breadth as well as length when the weight is put upon the foot. It is said that 90 per cent. of people to-day suffer from foot-troubles that lead to fatigue, irritability, and frequently to serious organic trouble. Correctly fitted shoes at six may save distress or illness in later years.

Very great sensory and mental development are noticeable this year. Concepts of the outside world are being established and elaborated constantly. Family unity and affection need emphasis now to provide a background of security and poise for the child. He needs the assurance of interested and sympathetic parents to help him over the treacherous rapids encountered in his first contact with the world at large which is represented by the kindergarten or other group activity.

Frequent family enterprises will be beneficial in the formation of habits that influence future behaviour and mental reactions.

The child who was started on a correct diet has developed his individual taste now. He enjoys natural foods in correct combinations. He understands that the food he eats keeps him healthy and growing and lively. Teach him never to accept food from any person except parents or those in charge of his home. Well-intentioned people are too often not accurately informed in matters of food composition and values. (Follow instructions in Chapter VII for correct dietary for the five-year-old.) Active children must have plenty of energy foods as well as growth-promoting varieties.

Towards the end of the sixth year the first permanent teeth appear. These are the sixth-year molars. They erupt directly back of the temporary teeth in each jaw. Often mistaken for baby teeth, they are neglected, with the result of decay or loss in a few years. Proper development of the dental arch is retarded when these important molars are removed. They are sometimes spoken of as anchors for the other permanent teeth, because if they are removed the later teeth are likely to come in crooked. Should the child insist on brushing his own teeth, there must be close supervision and examination after the cleansing. An older person will handle the dental floss since a small child might cut his gums or cause other damages in his effort to do the job thoroughly.

Physical and mental activity is so great that care must be taken to avoid excessive fatigue. Too many children are punished or reprimanded for naughtiness when they are really suffering from exhaustion. A weary child is prone to forget rules and even manners. Be patient with him and endeavour to avert the recurrence of the condition. Twelve hours' sleep at night is the minimum. A tepid bath, supper, quiet entertainment for one-half hour, then into a smooth comfortable bed alone for a good sound sleep. This is the correct order of the evening. Whatever visiting the child may be permitted to do must be done during the day. He will learn to enjoy calling with mother, playing with small friends, or taking tiny gifts to an invalid. An afternoon movie now and then may be permitted. This is a splendid way to pass a rainy afternoon when mother feels unequal to furnishing continuous suggestions. A few cities are providing special children's theatres and cinemas. In many others one morning or afternoon a week is set apart for children's features. This is a project that must appeal to conscientious parents who are familiar with the general tone of much of to-day's entertainment.

Children of five love to tell and retell their favourite stories. Encourage them to read aloud, to enunciate clearly, and to write plainly. At this age the child should have memorized a number of verses, rhymes, and songs. This memorizing fixes correct forms and modes of ethical expressive usage in the mind. Among children who have learned to recite good poetry and to repeat the old classic stories, the percentage of errors in English fall far below the average. Forty-six per cent. of errors in children's English are verb-errors; pronunciation errors account for 20 per cent.; leaving incorrect pronouns, colloquialisms, and double negatives to make up the remaining 34 per cent. Teach the child language-games that stress correct usage of the forms that give most trouble. A good method of systematically increasing the vocabulary is to introduce a new word every few days according to the child's ability to grasp them. They will be easiest learned if used in a well-known story at first. The vocabulary of the average five-year-old contains over nineteen hundred words.

The child should know the names and relative value of ordinary coins. He should be aware of the cost of some everyday articles, possibly milk, bread, or other staple foods. He ought to be able to estimate the number of marbles or pencils procurable with his spending money. Let him make some purchases now and then; but watch for, and nip in the bud, the tendency to rush to the confectioner's or toy-shop every time a copper is forthcoming.

Among the multitude of questions on every subject, the question of the child's own origin is bound to arise. It is a natural curiosity that prompts the interrogation and should be answered in a natural, sensible manner. The story of Nature in terms of plant life and flowers may be recalled to the child and used as an illustration of growth and development. If he has been taught that the human body is a beautiful and wonderful creation, if he knows something of the way in which food is used to supply energy and provide materials necessary for growth he will not show excessive interest in the reproductive function, but rather accept it as a newly understood part of a marvellous system.

One year in an organized kindergarten is valuable in preparing for the routine of school life that will follow. The child who has been in delicate health or who has been spoiled or pampered will be required to make mental adjustments in order to survive the strain of life as an individual in a group where everyone has equal rights and privileges. He will learn to accept with the sensible philosophy of childhood the little poignant cruelties of his classmates that are forgotten immediately they are consummated. Sometimes a child who is weak or small may be imposed upon—then he needs championing and protection. But frequently the boy who brings home tales of being bullied or heckled is doing so to gain special attention. Incredible as it may seem, many young mothers are jealous of their children's teachers. They criticize each plan and censure every attitude with the result that the pupil becomes restless, dissatisfied, or even insolent. Parents who value the child's future happiness will carefully guard against creating such an atmosphere.

Trustworthiness is not a natural virtue. The young person must be taught to feel a sense of responsibility for fulfilling requests made of him. It is difficult for a carefree child to learn the sad fact that duty has to be considered before pleasure. The little person who forgets to fulfil the missions entrusted to him needs to have certain regular tasks, reasonably suited to his capacity, that he must complete at definite times. Truthfulness is the twin of trustworthiness. When the child understands that his word is accepted, he will in most cases offer only truth.

No healthy child has a negative personality or a tendency to passivity. He wants to do his own thinking and doing. Let him make his own mistakes also —it is one of the best means of education. Every problem he solves alone sets him one step farther along the high road of self-reliance.

A sense of humour is born in some people. Children laugh spontaneously at what pleases them, but are inclined to take themselves and their small affairs very seriously. Years of education and effort are sometimes necessary to learn the art of laughing at one's self, yet this is a valuable asset in getting along with people and making one's way in the world.

The natural tendency to keep busy needs little direction to develop into industry as the child grows older. Teach him the value and dignity of a useful life. Bring to his attention some of the means that could be employed in making the world a happier, better place in which to live, and tell him of some of the people who have spent their lives joyfully accomplishing the tasks they set out to do. There are a few good biographies, written especially for children, now available. These make valuable additions to any child's library.

The little boy of the poem so joyfully exclaiming over the assorted contents of his pocket is typical of most children of five or six years. The collecting instinct urges them to gather up specimens of anything from pebbles to patches. Please treat these collections with the respect you would show for any valuable property, and provide for their safe-keeping. Perhaps the child will learn something of order and neatness from arranging the beloved objects. Such collections may give valuable clues to the child's real personality.

CHAPTER XIII

THE SEVENTH YEAR (SIXTH TO SEVENTH BIRTHDAY)

THE first year in school is a difficult time for many children, particularly those who have had no kindergarten experience or have not participated in any group-activity. Due to emotional strain, growth may be retarded to some extent. Statistics show an average increase in height of two inches and gain in weight of about five pounds. Figures are approximately the same for girls and boys. Essential care includes sufficient rest-periods, plenty of outdoor exercise, wholesome food served in correct combinations, and the continuance of good health-habits that have been previously established.

While becoming adjusted to the new routine the child seems to be driven by a deep-rooted restlessness. He is noisy and enjoys hard play. Boys will begin building huts or rough vehicles, sawing and pounding nails with unceasing energy. Girls prefer skipping, jumping, and climbing. Part of this energy should be directed towards exercise that will help to retain the rhythmic grace of childhood such as dancing and swimming. The painful 'awkward age' will hold no fears for the child who, through learning early to control his body, has acquired the essential elements of physical poise. The six-year-old boy is likely to develop a complex that finds expression in his spoken aversion to neatness and cleanliness. May his mother be patient! This attitude sometimes endures for several months. Compensation is granted by the gradual change in the little girl of this age. She begins to show marked interest in her appearance and manners.

See that the child's diet is adequate and varied. He will have learned to like almost every natural food. Dislike for a particular variety, as for instance, beets, is nothing to worry about. Another root vegetable may be substituted for them. A distaste for any class of foods, as for instance greens, should be overcome by serving this type of food in new ways and including the unpopular food in menus providing dishes that are especially liked. Each class of foodstuff has its particular use in the body and must be included in a perfectly balanced food-schedule. At the same time the basic body chemistry may react unfavourably to a special variety, causing a dislike for this one food. A good healthy appetite is the best guide to quantities of wholesome foods served at regular meal-times. Not only body weight, but the degree of activity and general make-up of the child must be considered in order to determine how much food he may have. Study Chapter VII for detailed information on diet.

Extra care must be observed to assure physical health and nervous stability, guarding against emotional upsets due to new regulations. Children who have been robust and free from illness often develop the so-called harmless diseases—measles, mumps, whooping cough, chicken-pox—during their first year in school. This may be due to lowered vitality caused by fatigue that is the result of mental stress. Watch the child's posture; it is usually a fair barometer of his health. Sometimes infection is due (when resistance is lowered) to direct contact with children who are not well enough acquainted with sunshine, soap, and water. It is a parent's duty to see the persons who surround his small child during the hours in school.

Sixth-year molars will make their appearance during this year, if they have not previously erupted. Have the teeth examined at least twice during the year. Permanent central incisors, both upper and lower, should replace the four temporary front teeth some time between the sixth and seventh birthday. Before entering school, the child must have a thorough examination by a competent oculist, even though there has been no trouble about vision up to this time. Impaired sight is the cause of a great deal of nervousness and backwardness in primary pupils and is frequently responsible for low rating in school work. The child may not be conscious of restricted vision unless he is given the opportunity to see as clearly as he should. Likewise, poor hearing, due either to infection or abnormal structure, is a monstrous handicap endured by many small children who have no way of realizing their own shortcoming. To prevent such condition, and so give each child the right start in school life, see that he has a complete examination (before enrolment) by a doctor in whose judgment you have implicit faith.

Twelve or thirteen hours' sleep at night is necessary to keep the growing child in good health. Small children should, if at all possible, return to their homes at noon for lunch. A quiet rest-period of fifteen minutes ought to be observed upon arrival home. Then careful washing of hands and face with soap and warm water before going to the table. The child will be ready to eat his lunch and his physical and mental reactions will be satisfactory. Keep table-talk to pleasant subjects.

Every child is endowed by Nature with unlimited egoism. He sees his surroundings and the wide world only in the light of his personal relation to them. Parents and teachers need patience and real understanding to stimulate in the youthful mind a feeling of generosity and consideration for others. By setting the example of sharing pleasures and possessions, the parent can foster a spirit of unselfishness and consideration in the child. Selfishness, like fear, is a protective instinct; either may be subdued in time through careful training and so mastered that it functions only as a beneficial quality. The backward child, the nervous child, or one who is physically handicapped may not have sufficient courage to enable him to become properly adjusted to school life. He needs help and encouragement, not ridicule, in turning destructive imaginative fear into realism.

Before entering school, parents or governess constitute the only authority recognized by the child. He is polite to those whom he esteems—that is his interpretation of respect. Small breaches of schoolroom etiquette are sometimes committed unconsciously by the beginner. The teacher may speak about respect, but the child is only confused by talk about subjects that are beyond his comprehension. Both parents and teachers must recognize that not until the intelligence and imagination, working together, are able to discern the difference between one's own incapacities and the ability of those older and wiser, can an individual be capable of a genuine feeling of respect. Courtesy towards the child and appreciation of his good points will, in turn, help him to develop and show respect for those who are worthy.

With natural spontaneity the six-year-old is likely to cause embarrassment by giving voice to his reflections or his judgment of people and their possessions. To create a feeling of delicacy or habit of reserve in children is the work of many years. Reticence may be only another name for self-control; but by any name it is foreign to child-life and is acquired with difficulty. However, the example of dignified and courteous parents will influence the child's attitude and behaviour in every situation.

The beginner at school must learn something of safety—how and when to cross the street, what to do when the fire-bell rings, and how to traverse the long flights of stairs safely. He must understand that he is never to carry on a conversation with a stranger or to go to any place with or at the suggestion of some one he does not know. Invitations from his schoolmates are to be accepted only when investigated and approved by his own parents. These rules must be made very clear to the child, but without his being told harrowing tales of kidnapping.

Start at the beginning of school life to let the child carry responsibility for punctuality at every session. He should learn to tell time this year; and even at the beginning, can learn the places on the clock that indicate time for breakfast and time to start to school. Parents should not be too much alarmed at lack of application during the early part of the first school term. Concentration must be cultivated. Moreover, there must be a strong incentive to cause a child to apply himself diligently to any task. Perhaps he finds he does not enjoy studying. Interest, then, must be stimulated by parents through contact with the teacher and the school.

Try setting an objective within the child's range of ability. A small reward for excellence of conduct and attention (not high marks) may be given at the end of each month to promote the right attitude. Each parent should be aware of school facilities, such as sanitation and lighting. Each should know what subject-requirements are set and be cognizant of the teacher's opinion of his child's attitude and work. Every child should be helped to acquire a happy, wholesome interest in school life.

By the seventh birthday the child should be able to use correctly about 1,930 words. Repetition of stories and reading good literature will assist in developing a fine vocabulary. Play of the competitive type will be popular at this time. Parents must guide the spirit of competition in the right channels, however. To be able to throw a ball farther or to chin the bar more times than the other fellow is an accomplishment justifying pride. But the tendency towards competition in material things, as for instance boasting that "my ball cost twice as much," must be dealt with firmly. This is the destructive type of rivalry that leads to jealousy, discontent, and emotional maladjustment.

Whether the child enjoys school and thrives on the routine, or whether he finds the new rules wearisome, he needs a happy home-life to give him stamina. Let him feel the strength and approval of the family backing him in his effort to acquire a coveted physical courage and the mental equanimity he must have to establish himself successfully in this new sphere.

CHAPTER XIV

THE EIGHTH YEAR (SEVENTH TO EIGHTH BIRTHDAY)

OBSERVATION of large groups of children, from infancy to the years of adolescence, leads to the conclusion that the irregularity of growth and development in certain children is due in some measure to the tendency to mature early (these children grow rapidly until eight or nine years of age) or to mature late (this group shows slow rate of growth until possibly the twelfth year). However, the average individual has, by the eighth year, acquired a noticeable stability of growth. Approximate gain this year, for both girls and boys, is five pounds in weight and two inches in height. Failure to gain, or loss in weight, signifies a poor state of health. Continue regular physical and dental examinations. Four more permanent teeth should make their appearance this year—the upper and lower lateral incisors. If the jaw-structure is normal and if adequate diet has been supplied, the permanent teeth should come in straight and well formed. A competent dentist will be able to correct faulty position to some extent if he starts treatment soon after malformation is noticed.

The seven-year-old's diet must be carefully planned. Exercise care in selecting his food so that every needed element will be supplied for growth and operation of the body. See Chapter VII for information on this subject.

At this age at least twelve hours' sleep is required at night. Rest-periods must be provided during the day for children who need them. Fatigue generates a poison in the body that leads to lowered function and disease. Distress-signals are irritability, restlessness, tense muscles, and complete loss of interest and lack of attention. Remember that there is a physical cause at the base of all abnormal nervous conditions in children. The chronically tired child must play less strenuously, have frequent rest-periods, eat plain wholesome food, take no stimulants, and sleep as long as possible every night. He should have a tepid bath before going to bed in a cool, quiet, dark room. Most of all, such a child needs sympathy and kindness.

Provide some gymnasium equipment for the children. With small expense swings, bars, and other equipment can be installed by members of the family. Boys should have a work-bench of the right height and some equipment suitable to their age and skill. It is better to have a few sharp tools than a fancy kit of saws that won't take hold, planes that will not cut, and hatchets with no edge. The boy who is deeply interested in bench-work may want to spend much of his leisure time in this way. Posture and vision will suffer from too long periods at any close work. See that he gets an equal amount of outdoor play. Being in reality little savages, boys at this age are extremely intense in their emotions, interests, and prejudices. They need careful supervision and guidance to help in balancing the expenditure of energy between diversified occupations.

Hiking appeals to children of this age. Nature collections may be started by bringing in specimens from each walk taken through the country. How much easier the geography lesson will be if it is supplemented by excursions that cover hills, valleys, and rivers, and include explorations of caves and other natural formations! All outdoor activities should be encouraged now—bicycling, skating, and swimming are especially good. Climbing and digging provide excellent exercise. Participation in organized games and supervised group-play will help to instil in the child a spirit of fair play and co-operation.

Both silent and audible reading, as well as attentive listening, will help to establish attractive habits of expression and to increase the average vocabulary that includes about 20–150 words. Letter-writing is rarely cultivated as an art nowadays. Since communication over great distances has become so easy, there is less need for politely written notes. Nevertheless it is an accomplishment worthy of development and should be started at an early age. Let the seven-year-old compose and write notes to his grandparents or other friends. And do not be too critical of his efforts.

To encourage the gracious habit of pleasant conversation at meal-time, let each child decide upon a topic for discussion at dinner at least once a week. Parents are likely to be surprised at the wide knowledge of even small children, and also at their eagerness to be heard.

Fundamental business-principles should be learned in childhood. The young person may or may not have his own allowance, but in any case attention should be given to the way he spends his money. To make his own monetary plans will help develop a business-like attitude and self-reliance. Help the child to keep a clear account of his money and guide as unobtrusively as may be his choice in purchases. He should realize the value of money and something of the limit of its value in the cultural, emotional, and educational world.

Perhaps formal report-cards were not issued during the first year in school. The pupil most certainly will be given some record of his progress in the second year. Some advanced educators advise marking only for application and attention; however, few schools have progressed this far along modern lines. Each child should be encouraged to do his best work, but class-rating is a matter largely of memory and must not be unduly stressed. The pupil who has a

B-grade mind can never do A-grade work and should not be tormented and discouraged because his sister or his friend brings home a higher report than he is able to secure. Instead of holding the report-card over his head like a sword, give the child credit for trying and show a little sympathy for mistakes. It rarely occurs to parents that if they were to be judged in everything they do, by some one with a very superior, excellently trained mind, that they would probably attain an average far below the standards they set for their boys and girls.

Early singing of songs and attention to the many excellent wireless programmes affording fine music will train the delicate ear of childhood in recognizing true tones and natural phrasing. For the boy or girl who is interested, a musical education may be started this year. Let the child select the instrument that he loves best; then secure a congenial teacher. Though not every lover of music is gifted with genius, yet he may through study become a sympathetic and skilled interpreter of the kind of music that appeals to his taste. But the child who has no inclination to study music finds such training a bore. He would do better if given some other special instruction for which he may show talent, whether it be painting or boxing.

Outside associations are multiplying through attendance at school, dancing-class, Sunday school, through acquaintances and neighbourhood friends, and many other contacts. The small person feels the need of the sure sympathy of loving parents and congenial home atmosphere. He is constantly required to make the choice between different standards of behaviour that are advocated by this child or that. The first criterion of right and wrong is his parents' sympathetic approval. If he is conscious of the certainty that his burning questions will be heard and answered wisely and kindly, there need be little fear for his moral welfare.

While the child's life and development are being so carefully planned, one grave danger arises—that of over-organization. To ensure commendable social attitude, supervised play is stressed during the years of childhood. Perhaps life to-day is too ready-made to give children the opportunity needed for development of personality and independence. Some time should be provided every day for the young person to spend as he pleases. What he does with it will be a pretty clear indication of his natural tendencies.

CHAPTER XV

THE NINTH YEAR (EIGHTH TO NINTH BIRTHDAY)

GROWTH in normal children will average about the same as in the preceding year, resulting in a gain of five pounds in weight and two inches in height. The child is developing personality traits that will presently identify him as a complete individual. Family characteristics and physical resemblances are increasingly noticeable from now on. Parents will suddenly realize about this time that they are dealing with a girl or boy who is no longer merely a child; for this is a year of unusual mental development. Intellectual activity coupled with the type of play that is exhausting sometimes interferes with proper physical growth. Outdoor play that is not too strenuous should be encouraged. Marbles, seesaws, or the cultivation of a small garden, will keep the child in the open air without leading to overexertion. Watch for indications of fatigue, the first of which is usually poor posture. Twelve hours' sleep at night and rest-periods during the day as needed in individual cases must be provided, to guard against retardation in both physical growth and mental development.

Food requirements include sufficient proteins for growth, carbohydrates and fats for energy, minerals and vitamins for chemical balance of the body and resistance to infection. Follow instructions in Chapter VII for information on this subject. Physical and dental examinations are extremely important this year. Good health-habits must be stressed, such as daily bathing, regular brushing of teeth, and adequate elimination. Some regular exercise may be required to correct posture-faults or to develop deep breathing.

Important as physical care is, there is one other responsibility the parent must not overlook; that is a clear understanding of the mental hygiene of childhood. Discipline and frustration, formerly the twin themes of child-study, have given place to an earnest desire on the part of parents to understand the child's mind and the reasons for certain reactions. The eight-year-old with any initiative will rebel at arbitrary rules for which he can see no valid reason. In most cases parents have, for any decisions they make, quite simple reasons that the child could understand. To answer the child's " Why? " with " Because I say so " is to build up in his mind a resentment against what he feels to be arrogant and unreasonable abuse of authority. It is for parents to remember that practically every natural impulse of the child must be transformed or modified to conform with social regulations that he does not understand. He deserves to be shown how greater happiness will come from conforming to ready-made rules before he is forced to comply with them.

Carefully selected reading-matter will be helpful in building character and forming fine ideals. Legends of brave men and their courageous deeds appeal to eight-year-old boys. Girls of this age like mythical stories of beauty and loyalty. A few prints, in clear and harmonious colours portraying characters or objects from the child's favourite stories hung in his room, have a constant, quiet influence on character formation. Notwithstanding the most faithful care, cases of 'moral-pox' sometimes occur during the ninth year. In every school, public or exclusive, there are moral delinquents. These poisonous children come from all classes of homes and may cleverly camouflage their perverted instincts in the presence of their family or other adults; but they find some means of slyly imparting a great deal of misinformation to young pupils at school. An epidemic of 'moral-pox' may break out in a school or community without warning. Children will be found to congregate in small groups to whisper, giggle, and stare at anyone passing by. At such a time it is rather difficult to gain the confidence of the child. Hysterics on the part of the mother will not help matters. Plain facts stated calmly and quietly will best undermine the more or less stubborn attitude likely to be met. It has previously been stated that every child should have constant supervision until at least ten years of age. If this advice has been followed and sympathetic understanding has been shown by parents, the exposure to such a flurry of maliciousness will leave no permanent scars upon the young mind. Polite behaviour as taught and exemplified in the home will indicate standards of reticence as well as courtesy—this is the finest protection a young person can have against contamination.

Because of multiple interests of bewildering variety, the eight-year-old is likely to be satisfied with a haphazard way of doing things. He leaves tasks half-completed, lessons half-learned, and turns to some of his other pursuits. It is time to learn that whatever is worth doing should be done to the best of his ability, with no attention given to distractions and temptations. He must be helped to regard precision and thoroughness in a few chosen undertakings as more desirable than scattered fruitless interest in too many subjects.

The collection-mania is pronounced during the ninth year. Boys' collections frequently run to live objects that are hard to confine and may therefore become a bit of a burden on the family. Finding snails in the bath-tub or live bees in a jam-jar are not at all unusual occurrences in homes that boast a lively son. Little girls are generally collecting pictures, perfume bottles, or ribbons at this age; although more and more their interest is growing in natural subjects or along mechanical lines. Whatever the objects, a collection will have some disciplinary value since it requires thoroughness and persistency on the part of the collector.

Punctuality is a virtue hard for the child to acquire. Sometimes this is because there is no system or schedule observed in the home. Small duties that must be completed at stated hours should be given the heedless child to teach him the necessity for observance of a time-table.

Stress family unity this year, planning picnics, parties, and other enterprises in which the whole family can share. The girl and boy should be learning to entertain their friends graciously in their home, sharing the pleasures of companionship with family and acquaintances. Interests of girls and boys differ —each will be organizing his or her own little groups, clubs, and gangs. This gang-spirit is the outward expression of a growing friendliness that leads to loyalty. Although the popular idea associated with the word ‘ gang ’ gives an immediate, chilly impression of machine-guns and high-powered cars driven by nonchalant desperadoes with cigar-smoking women companions at their side—despite this idea, the gang instinct as we speak of it, simply marks the time when the child outgrows the individualist stage of earlier years and begins to develop some desirable traits that lead eventually to loyal friendship, community interest, and fine citizenship.

This is the time for the boy to join one of the Club groups affiliated with Boy Scouts and for the girl to become a Brownie, which really means a Junior Girl Scout. There are many other fine organizations for boys and girls, but scouting fills a special need (being non-sectarian) in teaching citizenship, high ideals, physical efficiency, and the value of service.

CHAPTER XVI

THE TENTH YEAR (NINTH TO TENTH BIRTHDAY)

PHYSIOLOGIC resistance of children increases with age. In cases of retarded growth or when a child has suffered from disease, this, the tenth year, will almost surely mark the beginning of renewed physical vigour. Average weight of girls in tenth year varies between 53 and 65 pounds while the average height is between 47 and 52 inches. Boys weigh from 52 to 70 pounds and will be from 47 to 54 inches. The second period of accelerated growth is approaching when the annual gain in weight will be doubled over the average yearly increase since infancy. Since girls reach physical maturity earlier than boys this intensive period may begin for them during the tenth year, though sometimes it does not appear until as late as the thirteenth or fourteenth year. Boys enter the second period of accelerated growth somewhat later, usually between the fourteenth and sixteenth years.

Good health-habits should be firmly established and so much a matter of routine that the young person of nine needs no reminding in the matter of dental care, daily bathing, regular elimination, and personal neatness. However, children who have had no previous responsibility in personal care, should at this age learn to look after themselves with only occasional supervision by the mother. During the tenth year both upper and lower first bicuspids should erupt. These teeth may come in crooked or out of line with the previously erupted second teeth—watch them carefully. Do not neglect the semi-annual dental and physical examinations. Eleven or twelve hours' sleep is necessary to keep growing, active children in good physical condition. They should be in bed by eight-thirty at the latest.

Youthful vitality must not be overtaxed. The buoyancy and energetic interest of the nine-year-old lead often to fatigue from extremes of action: poor posture will result if play or work is habitually continued to this point. Statistics indicate that nearly 80 per cent. of school children show more or less serious posture-defects: girls usually have a better carriage, while boys seem able to use their bodies better. This is doubtless because of better co-ordination due to type of play that includes the use of tools. The typical slump or slouch of growing children reacts against proper nutrition because it interferes with natural breathing and circulation and also throws stomach and abdominal muscles out of normal position. Since nutrition and posture are interdependable we may expect that a more general application of rules of scientific diet will bring about, eventually, an increase in correct configuration. (Read Chapter VII for information on food.)

Participation in outdoor sports such as swimming, climbing, rowing, hiking, and sailing—in moderation—will develop vitality. Games of skill and exhibitions of strength attract the healthy boy. He may join teams playing organized games (under supervision), but see to it that he is not regularly pitting his strength against bigger, heavier boys.

Through the period of adaptation and adjustment to a higher mental plane, handicrafts offer a most excellent outlet for energy. An axiom with modern educators is to the effect that mental and physical work must be so alternated that one provides relaxation from the other. The ultimate value in the pursuit of handicraft projects is three-fold: it develops co-ordination of mind and body, furnishes a source of creative pleasure, and provides a welcome rest from mental exertion. The child must select projects not too difficult of achievement, for joy in the completed task is satisfying and leads to new undertakings. High manual efficiency of the adult is dependent upon skilled hands that have been trained in early years through actual experimentation and accomplishment in craftsmanship.

Girls usually begin training in handicrafts through play-housekeeping, arranging tables, sewing for dolls, etc. Too many girls grow to womanhood declaring their inability to sew a straight seam or boil water because instruction in domestic art was begun at an inauspicious time or presented as a form of horrible drudgery that falls to the lot of women. Interest will be manifested in the arts related to housekeeping and home-making when they are regarded as desirable accomplishments. However, the girl with special talent should most certainly be given training in whatever form of handicraft appeals to her. Latent ability in the fine arts is sometimes discovered through the constructive training given in simple handicrafts. Weaving, painting, and modelling are usually popular with girls.

Boys like neat and efficient tools. When the school fails in providing a course in manual training, parents should supply some material and equipment and provide at least elementary instruction in some craft at home. Bird-houses, small pieces of furniture such as book-racks, little household conveniences such as desk-sets and candle-holders can be neatly made by the boy in his tenth year. Then the pleasure of contributing articles of his own making brings the boy into closer relation to his home. Appreciation of home is likewise developed through service and the sharing of responsibilities. Let every child have some duties to perform at regular times.

Intellectual progress now advances on a higher plane. An elasticity of spirit is noted accompanied by a widening of interests. The awakening of that saving grace, a sense of humour, is apparent in the sparkle of eyes suddenly grown deep and expressive. This is the period when the child acquires a new valuation of himself. He begins to build ideals that have a more firm foundation than fantasy or fairy tales. He carries himself with a new air, begins to grasp the fact that he is able, alone and unaided, to overcome handicaps, dominate situations, and accomplish desired objectives. Ambition, though vague and unrecognized, is stirring within him and as it grows a new restlessness possesses the child. A change in disposition often takes place at this time. Without any apparent reason a morose or sulky attitude becomes noticeable—it may result from repeated defeat in games, constant comparison with more brilliant children, or other causes. Strive to abolish the irritations and reduce the failures, for whatever is behind this change is striking deep into the child's heart and mind. Help him to see the favourable aspects of situations; but on pain of losing his respect and confidence do not attempt any Pollyanna philosophy—he is beyond eternal cheerfulness. With cautious guidance, however, he can learn to apply the elements of sportsmanship (a quality needed throughout life) in situations capable of producing acute problems of behaviour.

This, the second year of the gang spirit, witnesses the development of that primal form of loyalty—loyalty to the play group or gang members. (Upon this basis man established his first grouping of dwellings—clan camps and villages—and by so doing expressed his willingness to share physical responsibilities.) The second level—loyalty to principles—grows out of loyalty to persons. This brings a sense of obligation to fulfil agreements and keep promises. (Now the primitive citizen is working out a simple system of government and enforcing it upon unsocial members of the group.) From this higher feeling grow ideals and a sense of personal honour. (Civilized man has conceived an order of social service and evolved the ideal of personal sacrifice for the good of the race.) How clearly development of this one trait proves that each individual must pass through every stage of the growth and civilization of the race!

A wise training in the use of money is a stabilizing influence in youth. The child must be taught that money is a valuable instrument in the various operations of life, and not the ultimate measure of success. At this age every child should have a regular allowance in keeping with the family finances, for money is without educational value when experience in handling it comes through gifts that punctuate stretches of personal penury. Parents should know something of the expenditures and stand ready to advise at all times, but the real purpose and value of the allowance is defeated if a budget is furnished and adherence to it expected.

However, the two basic rules of managing an income will be readily grasped by the child. First, to keep his expenditures within his allowance; second, to use discretion in choice of distribution. Advances on future allowance can best be discouraged by the popular medium of visual education. If he is shown, in actual coin, just how the depleted income will look he may decide of his own accord to wait and save for the object of his desire. As the young person becomes accustomed to handling money his allowance may be increased, though only after he has clearly shown that his inclinations and tendencies justify a wider responsibility. Only by spending can he learn to appreciate the real value of money and the relative value of the objects he wishes to purchase. So with a little direction, the elements of business fundamentals become a part of the child's general knowledge long before he could define them in words.

Fortunate is the child in whose home fine literature is enjoyed and stimulating conversation is a part of the general atmosphere. Educational opportunities of inestimable value are afforded the young mind through listening to adult discussions of ethical subjects or current topics. The conversation will be quite beyond his depth at times—a desirable condition, for how can one aspire to higher knowledge until he recognizes the existence of it? The resulting thirst for knowledge naturally leads to reading, for the reading-habit is a development, not an unrelated, individual project.

Nothing is so discouraging or humiliating to a child as when people 'talk down' to him. Likewise he resents books that are obviously written for nit-wits or by them, and labelled " For Children." The test of a really good book written for children of this plastic and critical age is whether it is interesting to adult readers. The classics are to be recommended to impressionable minds for their fine interpretations and explanations of life. Mythology—the story of mankind written from the point-of-view of the opening mind—has an especial appeal for the developing mental capacity of the youth. Let poetry be administered in small doses to maintain its charm. The love of poetry is natural to children, but it should be cultivated early in life, for the child of nine or ten often has acquired the prosaic outlook of the average adult and scorns poetry as some pretty combination of words suitable for infants only. The tenth year is late enough to begin the reading of adventure and romance as portrayed in classic poetry such as Tennyson's *Idylls of the King*. What other medium so stirs the heart and illuminates the imagination? Lack of emotional development and training leads to dullness of moral perceptions—another way of saying that ideas without ideals are dangerous.

By noting the literature read in school parents can have a reliable guide in selecting suitable supplementary reading-matter for their girls and boys. This would imply visits to school which are desirable, and indeed essential, if the parent would keep in touch with the child's progress.

What with school, outdoor sports, and special studies, there is very little time free for social activities. An occasional concert, cinema, or children's operetta should be attended, preferably during afternoon hours. For the quiet hours at home, puzzles, games, games-boards, and structural material will keep the junior members of the family interested and happy.

Reading aloud in the family circle provides one way of passing pleasant hours and gives the parent opportunity to observe the child's diction. He should enunciate clearly. The tendency to mumble or slur unfamiliar words must be stopped. A reliable dictionary should always be available to check pronunciation or definitions.

Family projects that lead to better knowledge of the city or community are valuable both for the information acquired and for the promotion of civic pride and interest as well as family unity—qualities that every child needs in the formation of his individuality.

CHAPTER XVII

THE ELEVENTH YEAR (TENTH TO ELEVENTH BIRTHDAY)

DURING the eleventh year both girls and boys average a two-inch increase in height. A five-pound gain in weight is normal, although girls may gain more rapidly at this time. Girls weigh from 57 to 70 pounds and are between 49 and 54 inches tall. Boys weigh 57 to 77 pounds and vary in height from 49 to 56 inches. It must be kept in mind that these figures, while being the average for thousands of children, should be taken only as a guide to normal expectations of growth; however, disproportion of weight to height is an indication of physical lack of balance that should be investigated. Physical examinations should be made quarterly instead of semi-annually if the child is not robust. Insist upon observance of good health-habits every day. Dental examinations may be more frequent than usual this year in order to ensure straight, even teeth for both upper and lower second bicuspids are due to make their appearance. Early bedtime may be unwillingly accepted, but eleven or twelve hours' sleep is needed to keep the ten-year-old in good health.

About this age healthy children develop voracious appetites. They usually desire more food than do the adults in the family. Some restraint may be exercised, although there is a need for large quantities of the elements requisite to unusual rate of growth. See that all meals are served in compatible combinations and that a high percentage of foods taken are base-forming in composition. Correct dietary is largely responsible for the difference between the puny, nervous child and the one who is tall, well-proportioned, and weighty; right food makes for higher mental capacity as well, and the difference continues into adult life. (Consult Chapter VII for information on diet.)

As much time as possible should be spent outdoors. Horseback riding, tennis, and swimming are favourite sports with both girls and boys at this age. In organized games the child should play with those of his own age and near the same size. Ten-year-olds playing any organized game should be supervised at all times by some one experienced in the game and old enough to render fair judgments. This type of play is intensive and exhausting—it must not be allowed to usurp too much of the child's free time.

Through play and study in primary handicrafts, a fine control and co-ordination of muscles has been developed. Projects requiring skill in manipulation of tools may now be undertaken. Boys will enjoy block-printing, soap-carving, and mechanical-construction toys, particularly those that are equipped with real steam or electric motors. Girls are interested in basketry, soap-carving, lace-making, and cooking. Encourage whatever talent the child may have by supplying materials, providing a suitable space for his work, and generously praising his efforts. It is particularly important that the table or desk be of the right height and placed in a good light. During the cold weather when dark days are frequent, artificial lighting must be provided. Overhead lighting must be bright to be adequate; therefore when this method is used, the busy young person should wear an eye-shade to protect him from glare and strain.

This is a year remarkable for boisterous disregard for rules of polite conduct, personal carelessness, general noise, and heedlessness. Yet behind the usual rowdyism a widening of mental activities may be perceived. The ten-year-old who has been advancing in academic lines beyond the average grade for his age will probably hold a high place from now on. He may be expected to excel in several branches, for the old belief in the law of compensation is no longer accepted by educators. The chances are that the boy who leads his class in mathematics may also do brilliant work in English composition and at the same time rank as star athlete for his school. Genius is excepted. Development of a single talent to the point of genius is a freak growth to which no ordinary rules apply.

The self-willed child becomes a special problem during the period of extraordinary growth. He develops a new—and likely troublesome—determination that may become the underlying structure of a strong and reliable character, provided this dynamic power is wisely guided. Uncontrolled self-will is a devastating force that leads to mediocre and vacillating adulthood.

Exhibitions of rage may have a physical cause, or on the other hand they may be demonstrations of an ugly disposition. In any case, self-control of parents at such a time is most important though perhaps extremely difficult. The child's need for an example of gentleness and sympathy is never greater. Whenever possible, provocation should be avoided. The ten-year-old has become enough of a person to understand the policy of turning self-will into self-help. But first the desire to do right must be inculcated. Then he must be able to choose the correct alternative in situations that affect him, and at this point he will have to develop within himself the will to right action. Self-mastery is the inevitable result of following such a course over a period of time. The greatest need is for patience, patience, and more patience.

The natural interest in biography and stories of notable accomplishment can be used to advantage in developing the right attitudes and reactions. A renewed interest this year in heroic characters may be prophetic of life interests. Suitable reading-matter should be in every home where there are growing children.

Boys find inspiration and pleasure in magazines dealing with mechanics and adventures in science. At least one or two recognized weekly news-magazines should be available, and every member of the family ought to make a habit of reading some daily newspapers.

Through church, school, and home both girls and boys have opportunities of meeting all types and classes of children. Except when the home atmosphere is extremely dull or the family actually narrow in outlook, the intelligent child will instinctively choose for his friends children of the same type and class as himself. He should be free at all times to bring his friends into his home with the assurance that they will be received cordially. Judgments may be passed later by parents when an undesirable visitor has been present.

An impulsive child may become attached to a schoolmate whom parents at once recognize as impossible. It will be necessary in such a situation to proceed with caution, for criticism is likely to produce a result exactly opposite to that desired, the child building up a defence of his friendship that only experience can destroy.

Parents may amplify their influence through helping to form clubs for children with some special interest such as music or, perhaps, chemistry. The joy of quiet evenings at home spent in games, music, reading, and discussion has a special meaning to the children of the family, bringing them closer to parents and strengthening the ideals upon which sterling character and social usefulness are built.

CHAPTER XVIII

THE TWELFTH YEAR (ELEVENTH TO TWELFTH BIRTHDAY)

CONSIDERING the wide difference in height, weight, and general physical make-up of any group of eleven-year-old children, statistics appear incredible. Nevertheless, the average annual gain in weight (five pounds) and increase in height (two inches) remains the same as for several years immediately before. Girls vary in weight from 63 to 76 pounds, and may be from 51 to 56 inches tall. This is the year in which to expect the beginning of the second period of accelerated growth in boys with the accompanying physical intensity and its opposite, extreme listlessness. Boys weigh from 62 to 84 pounds and are between 51 to 58 inches in height. Continue semi-annual dental and physical examinations. This year, upper and lower cuspids and also upper and lower second molars should appear.

In planning meals for children of eleven, care must be taken to include essential food-elements for growth and to supply ample energy for the child who is feverishly busy growing up. However, avoidance of large amounts of heavy food must be stressed. Children (particularly boys) at this age use up so much energy that they will at times overtax the digestive system, unless wisely checked. The child who comes home from school ravenously hungry should have something to eat to help him over the void until dinner-time. Fresh fruit, milk, raisins, a few figs or dates will supply the needed energy. One wonders why so few children eat raw vegetables when they must have something between meals, for all children enjoy them. Recently a girl of twelve being introduced to a member of her scout-committee was recognized as " the little girl who always ate a raw carrot when the other children had lollipops." When natural tastes are developed rather than a craving for artificial foods, the child is set firmly upon the road to health. (Consult Chapter VII for information on food.)

Eleven hours of unbroken sleep are essential to proper growth and development of the child in his twelfth year. It requires close observance of the time-table to get some outdoor play-time, home-duties, evening meal and school home-work completed, and the girl or boy into bed by eight o'clock or eight-thirty in the evening. There may be an exception made now and then for special occasions, but see that these exceptions do not become the rule. It is a crime against the child to keep him up for evening cinema-shows or to accompany parents to affairs where he is only politely miserable (sometimes miserable only) trying to stay awake.

Outdoor sports of all kinds will be good for the boy of eleven, although he is likely to overtax his strength in attempts to make some local or school team, unless wisely guided. Organized play entails coaching or supervision by an older person. Camping-trips are especially fine for boys now, for they welcome the opportunity to help with camp-duties, learning in this way some of the rudiments of cooking and housekeeping. Primitive living even for a short time develops initiative, ingenuity, and self-reliance.

Watch the posture of both girls and boys. Plenty of sleep, good food, outdoor exercise in moderation, well-fitted shoes, and comfortable clothes—all are factors in forming correct habits of posture.

This may be the first year of real interest in education. The girl or boy has developed the ability to analyse problems and through reasoning to arrive at their solutions. There is a widening of interests that may reach out into many fields. Girls begin to display special talents through a natural desire to follow preferred lines of art, industry, or the professions. Boys are particularly interested in the marvels of science. They love to experiment with chemistry and mechanical devices. The average eleven-year-old will trade anything but his tooth-brush for the sheer pleasure of bartering. Keen appreciation of values and shrewd business sense are often demonstrated and are sure to draw admiration from associates even when they lose by the transaction, providing that the 'deal' has been fair in every way. The immature youth admires justice even when he recognizes the fact that the attainment of impartiality is beyond his limitations and judgment.

Dancing-lessons are a great help to the young person in gaining physical poise, which is only an advanced co-ordination of muscles. Swimming and pitching quoits are excellent means of developing muscular control.

Loyalty to beliefs or principles is well-developed now and binds the play-group, furnishing a unity of purpose for which each member works and will gladly endure sacrifice. One danger arises from the strong clan or group spirit—that of obstinacy, which is firmness wrongly directed. What a child wills to do is determined by his emotions and qualified by his intelligence. Prejudice or egoistic pride may be responsible for unreasoning stubbornness. The girl or boy may determine to follow the edict of the group leader even when ideas or objectives are not altogether acceptable. Tact and understanding as well as firmness and justice will be needed by the parent in handling such cases. The young person must be shown the error in judgment without reflecting upon the general ability of the leader, whenever possible.

Continued close association with local or school groups will gradually bring recognition of leadership to the individual who shoulders responsibilities and takes the initiative in solving the momentous problems of his colleagues. The girl or boy to become a leader must show good judgment, impartiality, ingenuity, and ability to anticipate problems and events. Few out of many are leaders, however. The youth who lacks those qualities that bring the coveted position should be taught that companionship and loyalty are altogether as necessary and admirable as leadership.

Parents should keep in close touch with the group with which their children associate, and entertain them frequently in the home. Lucky the grown-up who is so much a friend of the young folks that his home is also home to them, a place where they are always assured of a cordial welcome and real companionship. Such a mother or father need have little fear of rearing problem-children.

Systematic attention to regular tasks must be observed. Eleven-year-old girls and boys are really very busy people and should have only light home-duties requiring little time, unless there is some unusual condition in the family. Girls ought to be acquainted with all branches of housekeeping. Boys of this age can at least assist with care of garage, furnace, or yard. The boy who is interested in cooking (and there are many of them) should be given an opportunity to learn something of the subject. In these days of increasingly large numbers of bachelor-apartments, and employed wives, domestic science is a branch of study that would make living a simple matter for a great many boys as they grow older.

Some schools are wisely providing instruction in cooking and food-values for boys, usually given as club-work or as an extra-curricular project.

Self-confidence is essential to the well-being of youth. It is the foundation upon which is built up courage to face the world and to fight life's battles valiantly. Without a belief in his own worth and ability, no person (old or young) can gain the esteem of society nor hold a desirable position in it. The effect of past accomplishments helps the developing personality in finding and holding his rightful place in his group. No good can be accomplished by reminding the young person of previous failures—forget them, and help the child to put them out of his mind by leaving them out of conversations. Youth should be eager for the competition offered by games and study, to be anxious to show his talents and demonstrate his knowledge. One of the best methods of becoming successful is to talk success, think success, and live in anticipation of success. When a choice in training must be made it is better to chance the child's becoming a bit of an egoist rather than his being dominated by fears of failure and acquiring an apologetic attitude and ultimately being inhibited from taking his place in the rush of business and world affairs. Time and experience will take care of egoism. There is little room and small regard in modern life for the fearful.

Now the girl and boy should have complete understanding of sex, given plainly, and without unnecessary details. As the child's questions have been honestly answered in previous years, a foundation has been laid for the information necessary to complete this knowledge. It is to be hoped that every child has been taught correct terms for the parts of his body, has been given the answers to his questions in beautiful language, so that there will be no suggestion of vulgarity or secrecy. Definite information is the young person's protection from the insidious influences towards lowering of standards so frequently met.

There is the school of psychology that declares one's every thought and action to be conditioned by his attitude towards sex. It is our belief that such a statement is an exaggeration of actual fact. The sex-instinct undoubtedly is a powerful force, but it must be controlled through cultivation of high ideals of conduct. A personal philosophy of emotional restraint and a quality of reserve in friendships should be taught each child. Emotionally poised children are happy and have a much more pleasant life than those who give way to the storm and stress of fits of anger or hysteria. Boys should be helped to develop a chivalrous attitude towards girls and women. Every boy's model of manliness is his father. If the father is courteous to the mother and sister as well as to other women, if he has fine tastes and values, he will have need for few lectures in behaviour. Girls' ideals should be guided towards a strength of character, one that embraces sympathy as well as right thinking—beautiful living in every sense.

If parents can teach their children the value of sympathy and service, they have accomplished two splendid aids to character-building. Thoughtfulness for others will smooth out many a rough place in the path of living. Through family loyalty and unity the younger generation is prepared for the extended duties and responsibilities of civic, business, and professional life. When the children of the world have learned to realize that interdependence is the basis of man's existence, we can hope for a civilized kind of world-wide peace, and not before.

Scout movements for both girls and boys teach the highest ideals of patriotism, honesty, physical development, morality, courage, civic responsibility, and service. Every young person associated with the non-sectarian, non-political Scout organization is better equipped for living a full and useful life as a result of the association.

Again in the field of religion, the best family traits help in developing the feeling of reverence upon which all true religion rests. Formal religion is fast losing its hold upon youth. The child should have the conception of God as a loving Father who is interested in the greatest good of His children, not as a type of perpetual Santa Claus who will fulfil each little request without regard for others. How many children, I wonder, have lost respect for the God who has not kept faith with them by answering absurd requests? Religion in the early years begins with perfect trust in parents and an unshakable belief in their sympathy and understanding.

One oft-forgotten essential of education is the development of the ability to play. Life is by no means all work, or should not be. The ability to drop responsibilities and mix with people at recreation is an important part of a rounded life. Teach your children to work and to play in moderation. Then help them to build the ideals of self-respect and fairness, to keep in mind the need of all humanity for kindness. This accomplished, you will have conditioned them to meet life bravely and merrily.

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